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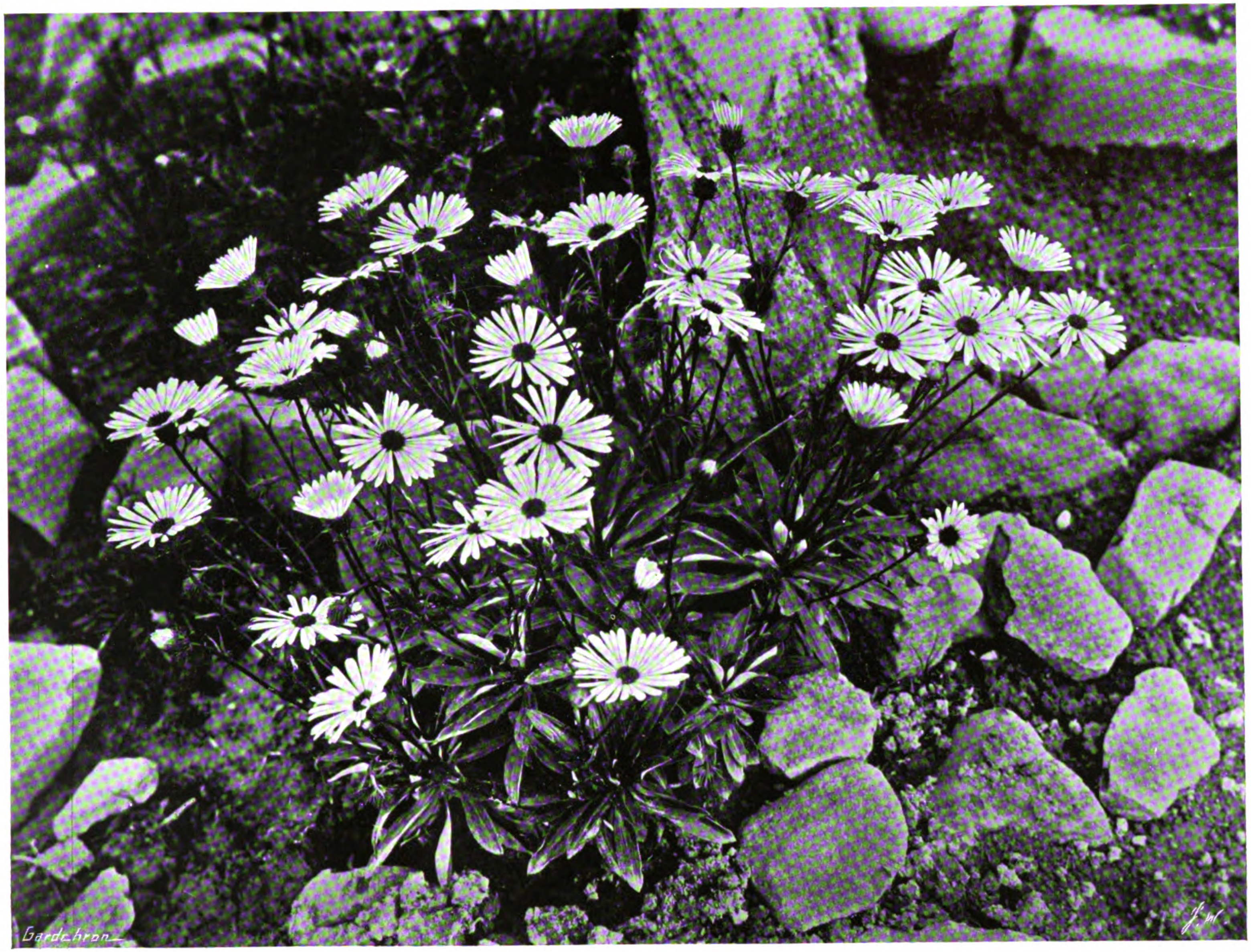

CELMISIA LINDSAYI IN MR. J. SPEDEN'S GARDEN, GORE, NEW ZEALAND.

THE
Gardeners' Chronicle

No. 1932.—SATURDAY, JANUARY 5, 1924.

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Actual Temperature:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Monday, January 2. 10 a.m.: Bar, 30.1; temp. 48°. Weather—Dull.

1923.

The past year may not occupy a very important position in the history of contemporary horticulture, nevertheless, several events of more than ordinary interest took place during 1923. Of these, the chief was the Ghent Quinquennial Exhibition held in April, for these Belgian shows are always landmarks in the world of horticulture, and the show held last year was of added interest by reason of the long time that had elapsed since the previous one was held. The exhibition attracted large numbers of visitors from all parts of the world, and Belgian horticulturists are to be congratulated on the splendid success which attended their efforts, following a war in which their country, and Belgian horticulture especially, suffered grievously. Such shows not only serve to stimulate international trade but, of equal importance, foster a feeling of good fellowship amongst those who love beautiful flowers and the peaceful pursuits of nature. Another important horticultural event was also held on the Continent during September; the International Horticultural Conference at Amsterdam, which marked the occasion of the Jubilee of the Netherlands Horticultural and Botanical Society. Of our own numerous exhibitions, the Chelsea show, as it has come to be known, is by far the most important. These spring shows of the Royal Horticultural Society may be acclaimed the finest of their kind held in any country, and the exhibition of 1923 was one of the best of the series. They serve to show the great interest the general public has in flowers and gardens and that they are not mere pageants of fashion is clearly evident for, whether wet or fine, the tents are crowded with keen sightseers who are anxious to see the latest and best that British horticulture has to offer. The autumn show of the Royal Horticultural Society, held in the Holland Park Hall, was of special interest to growers of fruits and vegetables. Fruit and vegetable competitions have a special interest for professional gardeners, and the inclusion of the special fruit and vegetable shows made the Holland Park Hall display largely a "gardener's" exhibition. The competitive features of the show will be abandoned in the present year and a special competitive fruit and vegetable show will be held at Vincent Square on October 7–8 next. The ordinary Royal Horticultural Society's fortnightly meetings in the Vincent Square Hall have maintained their high reputation and usefulness. As the membership of the Society grows, the Hall is, in certain seasons, inadequate to hold the numerous exhibits or to allow the visitors to inspect them in comfort. All this points to the need for a more adequate building, one in which all branches of horticultural activity could be accommodated, but the time may not be opportune for its realisation. Of the provincial shows, great success attended those of Shrewsbury, York, Edinburgh, Glasgow, and the Imperial Fruit show at Manchester. The exhibitions of the special floricultural societies are fast regaining their pre-war importance, and those of the National Rose Society, National Chrysanthemum Society, National Dahlia Society, British Carnation Society, and National Sweet Pea Society, all attracted fine exhibits and large attendances. The membership of the National Rose Society continues to grow, and the members and their friends take the keenest interest in the several shows. So numerous were the visitors to the spring and autumn shows that the greatest inconvenience and confusion prevailed, and it behoves the Council of the National Rose Society to provide a more adequate building for their spring and autumn exhibitions in the future. The formation of the Orchid Club at Manchester is a sign of the times and points to the great interest in these flowers. In this connection, reference may be made to the success which attended the special Orchid shows at the Royal Horticultural Society's meetings. The progress among hybrid Orchids—the most notable novelties of the year—and other items of special interest to Orchidists are dealt with on another page. The results of the several plant-collecting expeditions, principally in China, are being reflected in the large number of new plants seen at shows. The Royal Horticultural Society alone made a very large number of awards to new plants, a goodly proportion of them being to species newly introduced. The list is, as will be seen on reference to our indices, steadily growing larger and, whilst merit should be recognised, the various committees recommending these awards should endeavour to keep the standard of quality as high as possible. Trials in the garden are the surest test of merit, and it would be better if all varieties of florists' flowers were judged by expert florists or by a garden trial, as is now being done in the case of new Dahlias at Wisley, and of new Sweet Peas in the trials of the National Sweet Pea Society. Much valuable work has been done during the past year by scientists in helping to investigate the heavy toll which diseases and pests take cf farm and garden crops. All gardeners owe a debt to the various scientific institutions in which agricultural and horticultural problems are studied, for knowledge has been widened and, in some cases, such as that of Wart Disease in Potatos, the grower has been entirely relieved of anxiety. The announcement of the intention to establish a memorial to the late Sir Isaac Bayley Balfour in the form of a special garden at Glenbranter was made so recently in these pages that we need only give passing reference to the fact, but we take this opportunity to urge upon all garden lovers the claims of this novel method of perpetuating the memory of one who has done so much for horticulture The year that has passed has robbed us of another whose name will stand out prominently in the annals of gardening. We refer to the late Rev. W. Wilks, a man who helped to raise British horticulture to the eminence it has attained chiefly by his efforts in placing the premier horticultural Society on a sure foundation, and by his wise secretarial management when that was accomplished. There are also others whose loss we have to mourn, amongst them those grand old gardeners, R. P. Brotherston, Owen Thomas and Thomas Challis; the Rev. Canon Fowler, John McHattie, Thos. Winter, George Caselton, W. H. Laxton, and the Hon. N. S. Rothschild. Owing chiefly to the vagaries of the weather the crops of 1923 were not so good as usual, but we look forward to the year that has just started with every confidence and in the hope that horticulture may derive full benefit from the great exhibition which is being promoted at Wembley to foster the industries of the Empire and bind our various peoples into a strength which will be proof against all difficulties.

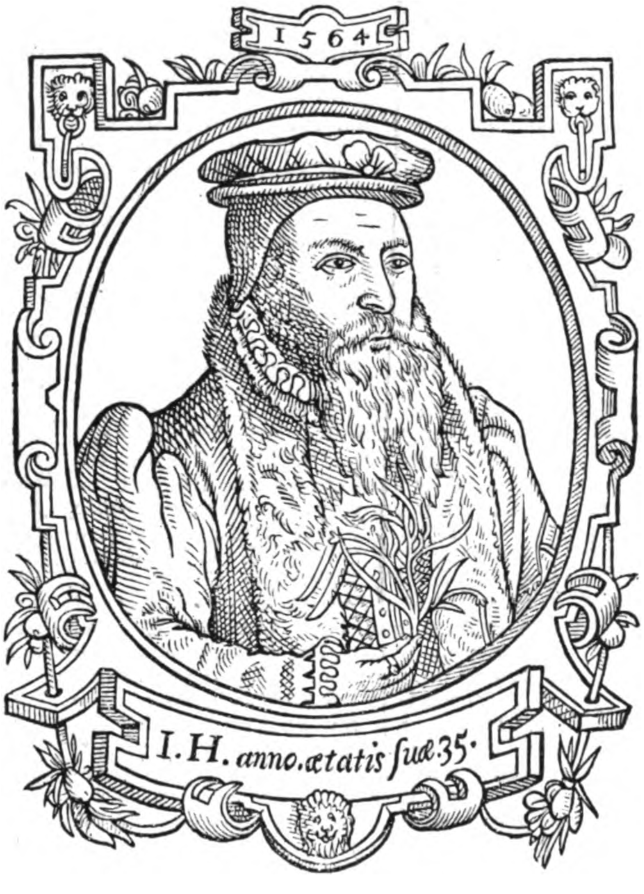
"Gardeners' Chronicle" Almanack for 1924.—We shall publish in our issue of January 12 a "Gardeners' Chronicle" Almanack for the year 1924. In order to make it as useful as possible for reference we shall be obliged if Secretaries of Horticultural, Botanical, and Allied Societies, or any of our correspondents WILL SEND US IMMEDIATE INFORMATION OF ALL FIXTURES FOR THE ENSUING YEAR.

Horticultural Conference at Nice Postponed.—French horticulturists had proposed holding a Congress at Nice about January 12, 1924, but this has been postponed to March or April, 1925. It has not been found possible to obtain hotel accommodation for the delegates during so popular a season on the Riviera, and when the season is over—*i.e.*, in March of this year—the elections will occupy the attention of all Frenchmen. It has therefore been decided that it will be best to hold the Congress in the spring of 1925.

R.H.S. Meetings and Exhibitions in 1924.—The following meetings and exhibitions have been arranged by the Royal Horticultural Society for the ensuing year: January 15 and 29; February 12 (annual meeting) and 26; March 11 (2 days) and 25; April 8 (2 days) and 15 (2 days); May 13 (2 days) and 27 (3 days, Chelsea show); June 11 (2 days) and 24 (2 days); July 8 and 22; August 12 and 26; September 9 and 23 (3 days, Holland Park); October 7 (2 days) and 21; November 4 and 18; and December 2 and 16. There will be no competitive classes for either fruits or vegetables at the Holland Hall exhibition on September 23, 24 and 25, but a special fruit and vegetable show will be held in the Vincent Square Hall on October 7 and 8. At the meetings on March 11 and 12 and April 8 and 9 special prizes are offered for collections of Orchids.

Parasites of Insect Pests.—Gardeners are well aware that certain insects are beneficial in suppressing other insects which constitute a menace to garden crops and plants, and probably the best known example is the ladybird, which does so much good in keeping aphis in check. But it has been found that these beneficial insects which are indigenous to or have long been established in a certain country are not readily increased artificially, as their position in the insect world is stabilised, but much good may be done by new introductions. Thus the New Zealand authorities hope to stop the spread of the earwig in that country by the introduction of a parasite to attack and suppress the pest, and they have recently had consignments in New Zealand of puparia of parasites of the earwig and, in some cases, the eagwigs themselves with the parasites within them. As these earwig parasites do not appear in New Zealand, it is hoped that they will increase and multiply there in the future, at the earwigs' expense, and so form a natural control of that pest. The earwig itself, being an insect which has been "introduced" into New Zealand, possesses no natural enemies sufficient to keep it in check and maintain a balance. Hence the need for the measures which are here outlined. The earwig parasites are being bred and despatched to New Zealand by the Rothamsted Experimental Station, acting on behalf of the Imperial Bureau of Entomology. This Institution is also breeding Ichneumon Fly parasites of the Pear Slugworm for introduction into New Zealand. Great Britain is receiving her share in the exchange of beneficial insects between countries. From a small amount of material received from France last Spring, some thousands of cocoons of a Chalcid Fly known as Aphelinus Mali have been raised at the Ministry of Agriculture's Pathological Laboratory at Harpenden for distribution to a few chosen places over the country next year, which will become distributing centres in their turn. This Chalcid Fly is a parasite of the Woolly Aphis or American Blight, against which, if it can be successfully established, it should prove a valuable controlling agent. This fly was at first thought to confine its attentions entirely to Woolly Aphis, but from information recently received from other countries where its introduction has been accomplished, several kinds of greenfly or aphides are falling a victim to it—a point which may add to its usefulness.

"Botanical Magazine."—The new part of Curtis's *Botanical Magazine* (vol. cxlix, Part 1.) contains illustrations and descriptions of twelve plants, as follow: Phytolacca clavigera, t. 8978, a new species raised from seeds collected by Mr. Forrest in Yunnan in 1913. It resembles the old garden species, P. decandra, but the flowers are rose-coloured in the young stage and the spike is very effective. The flowers are succeeded by black fruits, which are shown with other details on the plate. Maxillaria chrysantha, t. 8979, is an epiphytic species, and has been cultivated in the Royal Botanic Gardens Glasnevin, for many years, under the name of M. Galeottiana, and the reason for the confusion in the name is interestingly described by Dr. Stapf. It is stated that M. chrysantha flowers freely, and that its sweetly-scented flowers last a long time. Viburnum Davidii, t. 8980, was introduced by Messrs. James Veitch and Sons, and exhibited at the Royal Horticultural Society's meeting in 1911 (see *Gardeners' Chronicle*, May 20, 1911, p. 317). It is a low shrub of the Viburnum Tinus group, and has a many-flowered corymb, the flowers being followed by small bluish fruits. Candidea stenostegia, t. 8981, is a perennial herb with greyish, short-felted, branched stems and toothed leaves The inflorescence forms a flat flower head, and the heads are produced in clusters of two to four at the end of the branches. The corollas are finely filiform in their lower half and much inflated in the upper half, the inflated portion being rose-purple in the bud, paling as the flowers open to a pure white, slightly flushed with rose. The plant requires stove treatment. Caralluma pseudo-N. E. Brownii, t. 8982, is a member of the Asclepiadaceae, and has a great resemblance to a Stapelia. The flowers are uniformly blackish-brown with fine, short, transverse wrinkles and yellow lines and dots between them in the lower half of the segments. Rhododendron Thayerianum, t. 8983, is very handsome, judging by the plate; the inflorescence forms a loose truss of smallish, funnel-shaped flowers, rose-red on the outside and pale rose fading to almost white inside, with numerous red dots on the back of the throat. The inflorescence is surrounded by a cluster of ten to twenty leaves at the upper end of each year's growth. Turraea floribunda, t. 8984, is a native of Natal and the coast region of the south of Durban, and requires stove treatment in this country. The flowers are pale yellowish-green and sweetly scented. They are produced in twos or threes on short, scaly, leafless spurs. The petals are linear and revolute in the upper half. The stamens and style form a very attractive feature, the former being united into a slender, white tube breaking up at the mouth into a frill of twenty short linear lobes, below which the small anthers are inserted. Sempervivella alba, t. 8985, is a low, rosulate herb covered with small, gland-tipped hairs. The leaves are produced in rosettes and are rather fleshy, flat, blunt and oblong in shape. They are green but, like the flower stems, they often turn a pretty red or rose colour. The flowering stems bear loose cymes of eight or fewer flowers on a short stalk, and the flowers are saucer or star-shaped and pure white with a greenish centre. The plant has been grown in gardens for many years without having received a name. Primula calciphila, t. 8986, is the plant which was illustrated and described in *Gardeners' Chronicle*, September 15, 1906, p. 191, by Mr. E. H. Wilson. Tecophilaea cyanocrocus, t. 8987, a handsome plant, is well known in gardens, and was described and illustrated in *Gardeners' Chronicle* so far back as 1872, p. 219, Fig. 91. It is sometimes seen at the R.H.S. meetings in collections of hardy plants. Rhododendron lacteum, t. 8988, was described by Balfour in *Gardeners' Chronicle*, March 25, 1916, p. 168. Cyclamen balearicum, t. 8989, is a species rarely found in cultivation, and has been confused with C. repandum, but is readily distinguished from it by its bluntly-lobed or almost entire leaves and its much smaller, whitish flowers. The plant flowers from February to March, and apparently needs protection similar to that given to florists' Cyclamen.



DR. HALL OF MAIDSTONE (SEE PAGE 6).
From a reproduction of the portrait which appeared originally in the *Expostulation*.

Orchid Club Dinner.—An inaugural dinner of the newly established Orchid Club at Manchester will be held in the Midland Hotel, Manchester, on Friday, January 11, 1924. The reception is at 7.15 p.m.

Presentations to a Secretary.—The Ipswich and District Gardeners' and Amateurs' Association has presented the Hon. Secretary of the Association, Mr. F. W. Salmon, with the diplomas of the Associations concerned with horticulture locally, namely, Ipswich and District Gardeners' and Amateurs' Association, Ipswich and East of England Horticultural Society, and the Fruit Growers' and Ipswich Allotment Holders' Society, together with a cheque, in appreciation of his services.

Winter Thunderstorms.—Mr. C. J. P. Cave, Stoner Hill, Petersfield, who proposes—in conjunction with the Meteorological Office—to make a census of winter thunderstorms in the first three months of 1924, states that in 1923 there were thunderstorms in the British Islands on fifty-two days out of the first ninety days of the year. This is probably an abnormal number. The investigation can only be carried out with the help of the public, and Mr. Cave would be obliged if any of our readers would report to him, by postcard or otherwise, any thunder or lightning they may observe between January 1 and March 31. The date and time is important, and in the case of lightning at night the direction in which it is seen. Any other information is useful, such as whether the storm is severe, whether it passes overhead, whether there is rain, hail, or snow, much wind, a change of wind, or a drop in temperature during the storm. Observations are welcome from all parts of the British Islands, and are particularly needed from Ireland and the Highlands and western seaboard of Scotland. Observations may be sent in as storms occur, or, if preferred, at the end of the period. A record that no storm was noted at any place during the three months is as valuable as the record of a storm.

The Storage of Apples and Pears.—A useful leaflet on the commercial storage of Apples and Pears has been issued by the Ministry of Agriculture and Fisheries, together with a list of varieties of Apples and Pears suitable for storing. The conditions of storing Apples are summed up as follow: (1) the atmosphere should be rather moist, but should not be allowed to become stagnant; (2) there must be considerable ventilation during the first three weeks, but afterwards the amount of ventilation can be materially reduced; (3) a cool and even temperature is desirable. The temperatures at which Apples keep best are from 36° to 46° in summer and 32° to 35° in winter; (4) complete or partial darkness should be preserved.

Importation of Bulbs into the Isles of Scilly—At the request of the bulb growers in the Isles of Scilly, the Ministry of Agriculture and Fisheries has made an Order placing certain restrictions on the importation of bulbs into the Isles. This Order (the Bulb Diseases (Isles of Scilly) Order of 1923) came into operation on the 1st inst. On and after that date each package or consignment of Daffodil or Narcissus bulbs landed in the Isles must have attached thereto or be accompanied by:—(*a*) In the case of bulbs grown in England, Wales, Scotland, Northern Ireland, the Irish Free State, or the Channel Islands a certificate issued by a duly authorised official of the relative Department of Agriculture that he has examined the bulbs and found them to be clean and free from disease; or (*b*) in the case of bulbs grown in any other country, the copy certificate prescribed in the Destructive Insects and Pests Order of 1922; or (*c*) a declaration that the bulbs have been immersed for a period of three hours in water maintained at a temperature of 110°. This declaration shall be signed by or on behalf of the approved person (*i.e.*, a person approved for this purpose by the Minister) who has carried out the treatment, and shall be made not more than three months prior to the date of shipment. The Order also prescribes measures to be taken by bulb growers in the Isles in cases where disease is found to be present. In the case of consignments sent from this country, the certificates indicated under (*a*) above will be issued by the Ministry's Inspectors after examination of the bulbs. All applications for these certificates should be addressed to the Ministry at 10, Whitehall Place, London, S.W. 1. The fees charged for this service will be on the scale of fees at present in force for the examination and certification of bulbs for export abroad.

Appointments for the Ensuing Week.—Tuesday, January 8: Jersey Gardeners' Society's meeting. Friday, January 11: Orchid Club's meeting and dinner. Saturday, January 12: Newcastle and District Horticultural Society's annual dinner.

"Gardener's Chronicle" Seventy-Five Years Ago.—*Boiled Salads.* I think you have not followed up your plan of giving receipts for different vegetables so much as you ought to have done. Now I find most of my guests eat boiled salads, whilst there are many who will not (whether in fear of cholera, or for some good dyspeptic reasons) eat a raw salad; and yet I do not at other tables, three times in a year, see a boiled salad. The best materials are boiled Celery, Cardoons, Jerusalem Artichokes, Artichoke bottoms, Broccoli, Cauliflower, Seakale, roasted Onions, and Beetroot, white and red; any of these (so as the roasted Onion and Beet are of the number) are sure to make a good salad. The vegetables should be quite cold and the dressing should be for a common salad, viz., oil, sugar, but no mustard. Mind, the cream is not to be a substitute for oil, but used as an auxiliary; to make the dish very savoury a chopped anchovy may be added, or a little cold fish. Cod, turbot, sole, lobster or crab is a great addition. Cold boiled Seakale alone with only oil, vinegar, pepper and salt, makes a capital salad; and those who have not eaten this will be surprised to find how much it resembles crab. I have not mentioned cold Potatos, so much eaten by the French; it requires long habit, or a very accommodating stomach to bear a dose of cold Potatos. I may add that a tablespoonful of claret, or light Burgundy added to the vinegar, is a great improvement, especially now that all our vinegar is that detestable compound called distilled vinegar. The French do not grind their pepper fine as we do, but merely bruise it; and this gives a better flavour. I believe it is sold at some of the oil shops, under the name of cencapé. *Dodman, Gard Chron., January* 6, 1849.

INDOOR PLANTS.

DRACAENA ARBOREA

THIS handsome plant assumes the dimensions of a tree in Uganda, where it is common on the outskirts of forests. It grows to a height of 40 ft. with a trunk 1 ft. in diameter, and branches freely. The leaves are dark green, 4 ins. wide and 4 ft. in length. Of wonderfully quick growth, it is a plant well suited for the quick furnishing of a large conservatory in the British Isles, and, as it is often associated in nature with Musa Ensete, it would be a useful plant for that type of subtropical bedding in which the wild Banana is generally a conspicuous feature. It does not object to strong sunlight.

I once established a fine avenue of Dracaena arborea, in the Entebbe Botanic Gardens, in the following manner:—straight stems 10 ft. long were procured and the heads cut off them. The stems were then planted in holes 2 ft. deep, exactly as one would put in a post. They quickly rooted and soon made numerous growths, all of which, except the top one were removed. A respectable head was formed in the first year, and at the end of the second year a very fine avenue of Dracaenas 12 ft. high, was the result. *E. Brown, Hillside, Doddington Sittingbourne, Kent.*

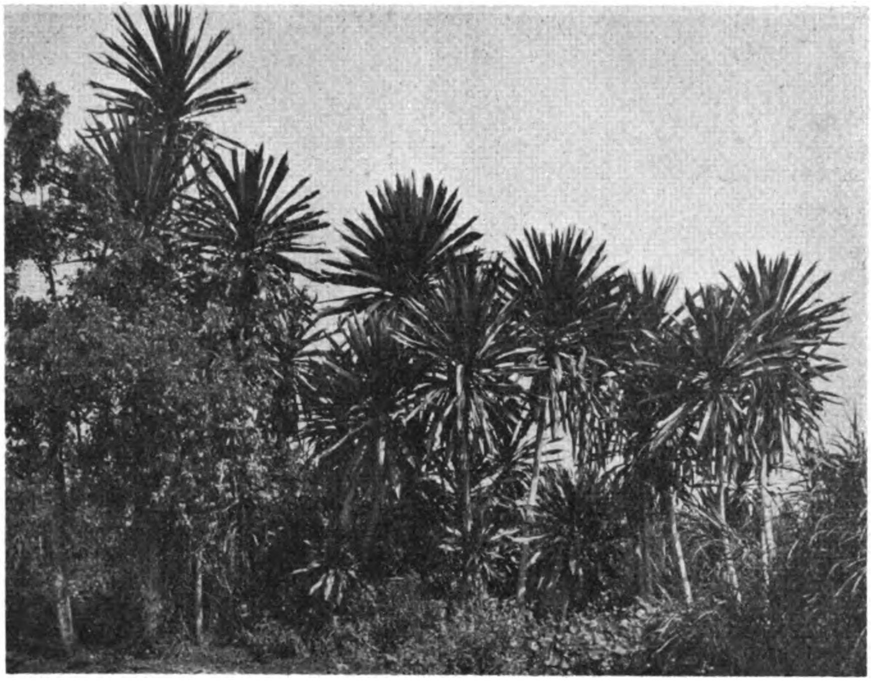


FIG. 1.—DRACAENA ARBOREA AT ENTEBBE.

GLORIOSA.

GLORIOSA SUPERBA is the most generally cultivated species of the genus; its congeners G. abyssinica, G. Rothschildiana, G. simplex, G. s. Plantii, and G. s. grandiflora are but seldom seen in gardens. Gloriosa superba is an old garden plant, indeed, well nigh a century and a-half ago, its physiological eccentricity inspired the muse.

The slender stems of G. superba are semi-climbing; the lanceolate leaves having tendril-like prolongations. The flowers are borne singly in the axils of the leaves; their colouring is a combination of orange and red. The narrow perianth segments are reflexed and erect, the conspicuous filaments projecting horizontally. For decorative purposes in the plant stove Gloriosas give good results when planted in wide, shallow tubs two or three tubers in each receptacle. Sometimes, owing to imperfectripening in the autumn, or to the chilling of the tubers during the resting period, they are slow to break into growth in the spring, and planting should be delayed until the tubers show signs of growth. They require a free, open compost consisting of a mixture of peat, fibrous loam, charcoal, and sharp sand. *Fred. W. Jeffery.*

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM MAHARAJAH.

A FLOWER of a fine new cross between Odontoglossum mirum (crispum × Wilckeanum) and O. Queen Alexandra (Harryanum × triumphans) is sent by C. J. Lucas, Esq., Warnham Court, Horsham (gardener Mr. Duncan). It is a notable addition to his dark violet-purple class of Odontoglossums, of which he has several fine examples. The present novelty, which is flowering for the first time, is of good shape, velvety-purple in colour, with small white markings at the bases and tips of the segments. The only one of its ancestors which has a true violet-purple tint in it is Odontoglossum Harryanum, some of the varieties of which have this tone well displayed in the labellum.

EPIDENDRUM LINDLEYANUM.

FLOWERS of this elegant species of the Barkeria section of Epidendrum, from Messrs. Sander, give a pleasant reminder that it is still in cultivation. The blooms taken from a many-flowered inflorescence about two feet in height have bright rosy-mauve sepals and petals, the latter being broadly lanceolate; the broadly ovate, apiculate lip is light rosy-mauve with a white disc and prominent ridged crest. The flowers of Messrs. Sander's plant are near to the variety centerae for which Messrs. James Veitch & Sons obtained a First Class Certificate on December 3, 1873. The plant is a native of central America. All the Barkerias are of slender growth with stem-like pseudo-bulbs and should be grown in baskets or suspended in Orchid pans. They should be rested in an airy greenhouse or vinery, after growth is completed, and watered sparingly.

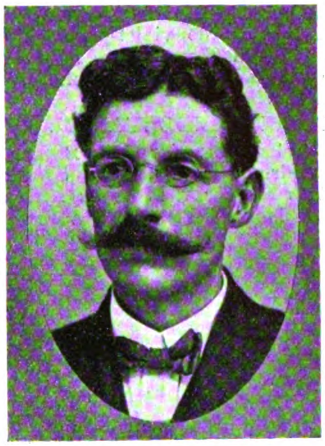
ODONTOGLOSSUM ROBIN HOOD.

MR. W. SORRELL, gardener to R. Gerrish, Esq., Milford Manor, Salisbury, sends a grand flower of this richly-coloured cross between O. Mars and O. illustrissimum, taken from a spike of six blooms. The flower is of the largest size, all the segments, and especially the petals, being broad with overlapping margins. The colour is deep ruby-crimson with small, pure white bases and a slightly fringed, white margin. The crest of the lip is bright yellow and there are white markings on the side lobes. The colour approaches the rich tint seen in some of the best Odontiodas, but is rare in Odontoglossum. The cross was made by Messrs. Armstrong and Brown.

The Week's Work.

PLANTS UNDER GLASS.

By F. J. CLARK, Gardener to Lt.-Col. Sir GEORGE HOLFORD, Westonbirt, Tetbury, Gloucestershire.



Cleansing the Plant Houses.—With the advent of the New Year efforts should be directed towards the thorough cleansing of all plant houses which have not already received this attention. Where housing accommodation permits, and the heating arrangements are adequate, this work will be the more thoroughly performed if one house at a time is cleared of its occupants, and the whole of the houses dealt with separately and in turn. During wet and rough weather, labour from the outside departments may be usefully utilised for this work. Gravel, shell, or other material which has been used on the plant stages should be removed, washed thoroughly, and then replaced on the stages; or clean, fresh material should take its place, after the stages, walls and woodwork have been well scrubbed. The roof-glass should be well washed, both inside and outside. An examination of the roof should be made, readjusting any panes of glass that may have slipped out of position, with a view to preventing "drip" and where it is possible the woodwork should be painted and the walls limewashed. Should any of the late occupants of the house have been infested with mealy bug, it will be advisable to take the opportunity to cyanide the house while it is empty of plants and before the house is painted.

THE ORCHID HOUSE.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart. Gatton Park, Reigate.

Temperatures.—So far as the English climate is concerned, the month of January marks the coldest period of the year, while plants are in their minimum state of activity, but the cultivator will now be looking forward to brighter days. The weather at this time of the year is apt to change quickly, which ofttimes makes it difficult to maintain the desired temperatures in the various houses, but the following temperatures should be maintained as nearly as circumstances will permit. Odontoglossum or cool house, 50° to 52° at night, 55° during the middle of the day, with sun heat the thermometer may be allowed to rise to 60°; Cattleya house, 60° at night to 65° by day, rising to 68° by sun-heat; East Indian or warm house, 65° at night to 75° during the middle of the day. A moist atmosphere should be created in each house by damping the stages and floors at least once daily, but in this respect the grower should be guided by the amount of fire-heat required to maintain the requisite degree of warmth. The temperatures I have given should be governed more or less by the weather. When it is extremely cold a degree or two below those mentioned will cause less harm to the plants than excessive fire-heat, while the use of the lath blinds or some other covering material at night will greatly economise the heat during frosty or windy weather, but the protection on the glass should always be removed as early as possible in the morning, or it will form an obstruction to the light.

THE FLOWER GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Forewords.—There is really no beginning or ending of the year in gardening, but the advent of January usually brings great joy to the gardener. He feels that he has turned the corner and is travelling on a path of increasing sunshine. At first sight plant life may appear to be mostly dormant, but the flowering of Chimonanthus fragans on the wall, of Iris unguicularis in the border, the unfolding of the buds of the Winter Aconite in the grass, and the shooting up of many early-flowering bulbs in the wild garden herald the complete re-awakening of Nature, and remind the gardener that he has to prepare in earnest to plot and to plan for the crops and flowers of another season. At this time it may be profitable to reflect for a moment on the successes or failures of the past year, with the object of gaining by both, and who can deny that many of the failures or partial failures can be attributed to the insufficient application of the policy of looking ahead? The man who is a successful gardener is the man who has cultivated this policy, for the beauty of our gardens three, six, or nine months hence depends largely on how we plot and plan at the present time. The weather is the controlling factor in outdoor operations at this season, but even when conditions are so bad as to prevent normal working there is much that can be done which will materially help the expedition of work, when the full rush of the season is on us. Stakes for the herbaceous borders may be sorted and tied into convenient bundles, sticks for Sweet Peas should be cut and pointed, tools sharpened and bad handles replaced, and where Birch or Heath is obtainable besoms may be made for future use. Where large collections of plants exist the replacement of labels will be periodically necessary, and this also gives considerable work for the staff during periods of bad weather. If the seed-list has not already been compiled, this should not be delayed as the time for sowing will soon be with us. The value of hardy and half-hardy annuals for filling weak places in the herbaceous borders, or for bedding schemes, and also for supplying cut flowers can hardly be over-rated. The choice of kinds and varieties for these purposes is a very wide one and may be left to the individual taste of the grower, but it might be mentioned that Single Asters, Coreopsis, Cornflowers, Cosmos, Clarkias, Dianthus, Larkspurs, Love-in-a-Mist, Stocks and Zinnias are particularly valuable for cutting, and if batches of these are grown in the reserve garden the flower garden will be correspondingly relieved.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Melons.—The present is a suitable time to sow seeds for the earliest batch of Melons. With the turn of the year Melon seeds always germinate more readily and the seedlings grow freely and make sturdier plants than those sown during December. The seeds should be inserted in small pots filled with a fairly light compost. I generally place two seeds near the sides of each receptacle, plunge the seed pot in a brisk bottom heat and cover it with a sheet of glass. If the compost is fairly moist very little water will be necessary until germination takes place. As soon as the seedlings appear place them near to the roof glass in a warm house, taking care that cold draughts will not reach them. Place a small stick to each plant as a support when needed.

Vine Propagation.—If it is desired to raise Vines from eyes this spring, prepare a gentle hot-bed of leaves for the purpose forthwith. Make the "eyes" from one-and-a-half to two inches in length, and, after splitting the wood in halves, insert the portion with the bud in a small pot, or several may be placed in a small pan, filled with an open compost containing a fair amount of broken charcoal. Guard against excessive moisture in the pot or pan until the eyes break into growth.

THE KITCHEN GARDEN.

By WALTER Y. STAWARD, Gardener to Mrs. JOHN FEENEY, The Moat, Berkswell, Warwickshire.

Onions.—To produce very large Onions the seed should be sown now in boxes and germinated in a house having a temperature between 55° and 60°. Water the soil freely after sowing the seed and place a sheet of glass over the seed-pan until the seedlings appear. The ground where the plants are to be grown should be well trenched and enriched with plenty of good farmyard manure. After the bed has been dug and manured a liberal dressing of soot should be broadcasted over it.

Jerusalem Artichokes—If this crop has not been dug, the remainder should be lifted and placed in sand or ashes and the ground trenched and manured for another crop. Some prefer to grow Artichokes on the same ground every year, but a change is beneficial in increasing the size of the tubers.

Seakale.—Where Seakale is required for forcing, another batch should be taken up, selecting the strongest crowns; for this purpose the roots should be broken off and the strongest ones cut into lengths of about five inches. Make the top cut square across and make an oblique cut at the base, to show which end the cuttings should be inserted. The prepared sets should be made into bundles of twenty-five and placed upright in ashes in which they will form eyes.

Early Plants.—If plenty of frames are vacant the soil in them should be dug and made level and sown with Brussels Sprouts, Savoys, Early and Late Cabbage and Lettuce. Cool frames are suitable for this purpose. Brussels Sprouts especially need a long season of growth; to produce good sprouts the ground should be thrown up roughly and receive a good dressing of fresh lime.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

The Pruning of Apples.—Trees that were pruned in the summer will not require much attention now, beyond shortening the side shoots to one or two buds, and the leaders to four or five, taking care to prune to a bud pointing outwards. Espalier and cordon trained trees may be pruned first, or when the weather is not suitable for pruning the larger ones. The growth on these trees is often far too congested with long spurs, and where this is so, some of the shoots should be cut clean out, preferably not all at once, or the trees may receive a check. In pruning bush and standard trees, the operator should be guided by the strength of the shoots as to the number of buds to retain. Strong-growing varieties should have the shoots left somewhat longer than the weaker ones, and any branches that cross or are too close to others should be cut out entirely, and the portion left trimmed with a sharp knife. It is a debatable question as to whether pruning should be done in very cold weather; personally I think it is best done when mild conditions prevail, especially in the case of young, vigorous trees. All prunings should be raked up and burnt, and the ash may be spread over the roots of the trees and lightly forked in the soil. Certain varieties, of which Irish Peach is a notable example, fruit on the ends of the shoots; such sorts should be pruned very lightly, merely taking out the weakest wood and keeping the heads well open.

Newly-planted Trees.—Late autumn was very cold and wet and not ideal weather for planting, but where this work was done, the trees should be mulched with half-decayed manure, which will serve to keep frost from the roots and encourage fresh roots to develop. Advantage should be taken of open weather to complete arrears of planting. Standard and half-standard trees should be staked securely against rough winds. Newly planted trees need not be pruned now, rather prune them a week or so before they commence to grow. Root action will then be more active and top growth will break better.

TREES AND SHRUBS.

HYBRIDIZATION OF BERBERIS.

Anyone who has much acquaintance with the Berberis family knows that it is practically impossible to raise young plants from seed gathered in this country with any hope that they will come true to name. There are exceptions, of course, for I have raised a good many B. Gagnepainii, which is one of my favourites in the evergreen section, and none of them shows any sign of divergence from the parent; also I have examined a large break of B. Stapfiana—a deciduous Barberry—in the nursery of my friend, Sir George Holford, at Westonbirt, where this kind fruits most profusely and, in that case, too, none of the seedlings showed any trace of hybridity. Nevertheless, the general rule holds good that plants of this genus have to be propagated by cuttings or layers if one wants to make sure of their being true to type.

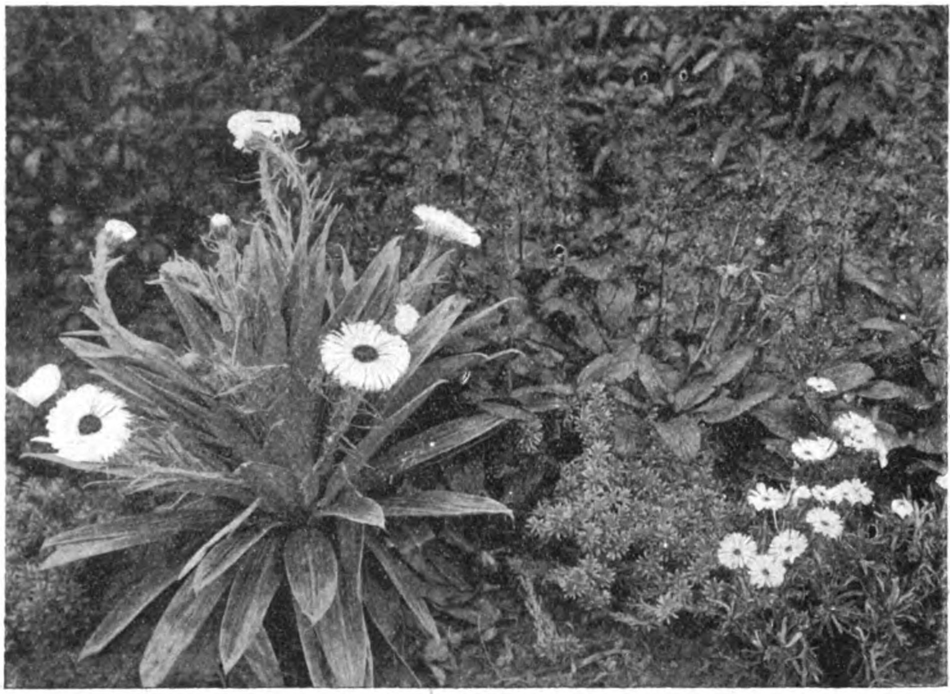


FIG. 2.—SPECIES OF CELMISIA: C. CORIACEA, LEFT; C. HECTORI, CENTRE, NOT IN FLOWER; C. DISCOLOR, RIGHT (SEE P. 6).

Now if this be admitted, what puzzles me is why did all the seed of Chinese Barberries collected by my friend the famous explorer, Mr. E. H. Wilson, in that country, come true. Originally I supposed that the explanation was that each species was confined to large districts where there was no possibility of contamination, whereas in English gardens eight or ten different species might be found growing within a few yards of one another. When, however, I suggested this solution to Mr. Wilson, he assured me that my premises were wrong, and that, in fact, it was quite common in China to find several different species of Barberry on the same mountain side.

Can any of your readers explain why seed of Berberis gathered in China should come true, and seed of the same species gathered in England should not? I cannot.

I have stated that all Chinese seed so far as my experience goes has come true, but there is one exception; seedlings of B. Wilsonæ show marked divergence from one another, especially in habit, but I suspect that this may be explained by the fact that the parent plant is itself a natural hybrid. The readiness of this genus to hybridize is, I daresay, due to the fact that many of them, as is the case with many cultivated Apple trees, are self-sterile, but this throws no light on the difference of behaviour between seed collected in their native habitat, and seed gathered in this country. *Vicary Gibbs, Aldenham House.*

VIBURNUM FRAGRANS AND V. CARLESII.

As these shrubs become more widely distributed, they will attain to lasting popularity, for even if the flowers had no beauty, the plants would be grown for their delightful odour. V. fragrans was collected by Mr. Purdom, and later by Mr. Farrer, and from Mr. Farrer's seed many plants have been distributed. These Viburnums usually flower from February to April, according to the season and situation in which they are grown; well-established plants may produce a few flower-heads during the autumn and continue to do so throughout a mild winter.

This plant appears to be thoroughly hardy and should be in every garden, however small, for it is not fastidious as to soil or position, although it succeeds best in a warm and sheltered corner. It is readily propagated by cuttings, and young specimens will flower. Drought is very detrimental to this species and should be guarded against.

V. Carlesii, with its white-tinted flowers and delicious scent is a fit companion to V. fragrans; it flowers in April or early May, and is of easy culture. A deep, well-drained soil is suited to its requirements, and it will succeed all the better if afforded the protection of a south wall, as late frosts sometimes mar the beauty of the blossoms. Propagation is effected by both stem and leaf cuttings rooted during June or July.

DEUTZIA VEITCHII.

This is perhaps the most beautiful of all Deutzias and worthy of general cultivation. Although not of very vigorous growth, it is, nevertheless, quite hardy, enjoying an open and sunny position and, in such a situation, it will freely give of its glorious, pure pink flowers, which never fail to remind me of that grand old greenhouse plant, Luculia gratissima.

A well-drained sandy loam is the best rooting-medium, and the plant needs an abundance of water during the summer, for it will not withstand drought. This shrub needs but very little pruning. *Ralph E. Arnold, Cirencester Park Gardens, Cirencester.*

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DR. JOHN HALL OF MAIDSTONE: BOTANIST AND POET.

GLANCING through the second volume of *The British Bibliographer*, 1812, edited by two well-known authorities on old and rare books, Sir Egerton Brydges and Joseph Haslewood, I came across some verses of botanical interest which seem to have escaped the notice of writers on Tudor plant lore. They are of more interest to students of English plant names than to students of English poetry, and the fact of their having been overlooked by both, is partly explained inasmuch as apparently only one copy of the book in which the verses, with others appeared, is known to exist—that which was long in Lord Spencer's library at Althorp, now absorbed in the Ryland's Library at Manchester. It was presumably from this example that Joseph Haslewood copied the three pages of extracts given in *The British Bibliographer*. The book is an octavo of only sixteen leaves, and was the work of John Hall (*circa* 1529-1566) of Maidstone, a surgeon by profession and a minor poet by inclination.

The title is: *A Poesie in Forme of a Vision, briefly inveying against the most hatefull and prodigious Artes of Necromancie, Witchcraft Sorcerie, Incantations, and divers other detestable and devilish practices dayly vsed vnder colour of Judiciall Astrologie.* It was published in 1563, by the well-known printer-publisher, Rowland Hall, at the sign of the Half Eagle & the Keye, in Gutter Lane, London, possibly a relative of the author. Only the initials of the author appear on the title-page, but his name is given in full in the Registers of the Stationers' Company. The *Poesie* is written in quatrains. The author, on going to bed, has dreams of a vision in which he finds himself in a meadow "where silver drops of dew most sweet did cleave to every grass." The verses of special interest to us are those which follow. (The spelling is modernised except in the cases of the names of plants):—

> There was no herb, nor pleasant flower
> In such a field to know:—
> But might be seen most fruitfully
> Within this field to grow.
>
> What should I name the Hiasinthe,
> Or soot Verbasculy:
> The Clover sweet of divers kinds,
> That called are Trifoly.
>
> The Brunell, and the Bugle blue
> With fair Hieracium;
> The Synkefelde, and the Betony,
> And Sweet Origanum.
>
> The Tutsain, and Hypericon,
> Asciron and Paunsye:
> The Vyolet and Simphiton
> And the double Dayseye.
>
> The Harts ease, and the Pacience,
> And crimson Pimpernell;
> The Cammock, and the Cammomile,
> And Cunterbury bell.

* * * *

> Odoriferous Serpillum,
> And Lady Trases fine:
> With Yarrow, torn twise, Strawberries,
> And Burnet good with wine.
>
> The Lunary, the Serpent's tongue,
> And Procerpinaca:
> The Adder grass, the Saxifrage,
> And eke Veronica.
>
> It hedged was with Honysuckles,
> Or Periclimenum:
> Well mixed with small Cornus trees,
> Swete bryer and Ligustrum.
>
> The white thorn, and ye black thorne both,
> With box, and maple fine:
> In which branched the Briony,
> The Ivy, and wild Vyne,
>
> Too long I should the time detract,
> And from my purpose stray,
> If I should reckon all the things
> Within the field so gay.

Into the other features of the *Poesie* it is not necessary to enter—he denounces the "roffins, theues and murderers" who use "physike and astronomie" as the cloak for every kind of "trechery." With the aid of Messrs. Britten and Holland's invaluable *Dictionary of English Plant Names* very little difficulty will be found in identifying any of the above-named plants, though the spelling in several cases show interesting variants. The spelling of the names may have been as they were pronounced in Kent.

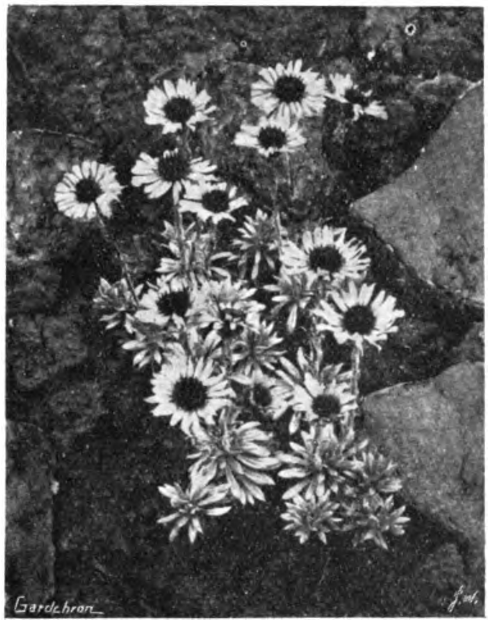


FIG. 3.—CELMISIA HECTORI; A BEAUTIFUL, SILVER-LEAVED, FREE-FLOWERING SPECIES.

Very little is known of this early English botanist, but fortunately his portrait has been preserved for us in one of his own books. His literary career began and ended with books of verse, but between times he published his best-known work, *An Historiall Expostulation against the beastlye abusers, bothe of Chyrurgerie and Physyke, in our tyme*, London, 1565, which appeared at the end of his translation of Lanfranc's *Chirurgia Parva*, which contains his portrait dated 1564, and inscribed "I. H., *anno ætatis suæ* 35" (see p. 2), from which it may be assumed that he was born in or about the year 1529. The face suggests an older man than thirty-five years, but probably this is due to the beard. It is particularly interesting to note that he is holding in his right hand a branch of a Leguminous plant with seed-pods—possibly the ordinary Sweet Pea. With all the early portrait painters these emblems had a distinct personal significance, and in engraving this portrait the intention of the artist was undoubtedly to indicate that Dr. John Hall was a botanist. A similar emblem may also be seen in the contemporary (engraved) portraits of much more famous men than Dr. John Hall—the celebrated Gerard "Master in Chirurgerie," Parkinson and L'Obel, to mention only three others, are all shown holding a spray of a plant indicating the bent of their studies. As a matter of fact, all the early medical men were botanists more or less, for it was a part of their education to know the properties of the various herbs which entered so largely into their medicines. Some pursued their studies of botany beyond the limits of their profession, and it may be taken that Dr. John Hall was one of them. He therefore presents a new name for the long hoped-for new edition of Mr. Britten and the late Mr. Boulger's *Biographical Index of British and Irish Botanists.*

Dr. John Hall was a member of the Worshipful Company of Chirurgeons of London. The late Mr. Halliwell-Phillipps at one time thought that Dr. John Hall was some connection of Dr. John Hall (1575—1635), the physician, of Stratford-on-Avon, who married Susanna, Shakespeare's eldest daughter; but the connection, at best, is "not proven," as was pointed out in *The Bibliographer* of September, 1883 (p. 91, on which the portrait of the Maidstone surgeon is reproduced). Watt, in his *Bibliotheca Britannica*, confuses the two men, and enters the younger man's work as having been written by the elder John Hall. Our Dr. John Hall's earliest work was a translation of certain proverbs of Solomon and some Psalms of David, printed in London in 1549, and it is worth noting that he here complains that some of his psalms had been unfairly attributed to Thomas Sternhold. In 1565 he published *The Courte of Vertue*, containing many "holy and spiritual" songs, "ballettes," &c., with music notes, a substantial little 16 mo. of 182 leaves. His *Historiall Expostulation* already named was reprinted for the Percy Society, under the editorship of J. T. Pettigrew, F.R.S., in 1844, "a highly curious volume, replete with instructive matter and interspersed with a good deal of poetry." A brief notice of Dr. John Hall appears in the *Dictionary of National Biography;* it would be interesting to know if there is any record of him in the published histories or unpublished archives of Maidstone, where he lived and where he presumably died. *W. Roberts.*

CELMISIAS.

THE pleasure of seeing a whole hillside covered with those beautiful New Zealand Composites, the Celmisias, is enjoyed only by a few enthusiastic botanists, who, leaving the hard and beaten track, wander over the mountains of New Zealand and through the valleys, viewing with delight acres of Celmisia verbascifolia, C. coriacea, and C. petiolata; or climb up the shingle slopes among the smaller, silvery rosettes of C. Hectori and C. sessiliflora, or the bright green rosettes of C. prorepens. One keen collector has recently remarked that "Sometimes the whole atmosphere for miles around is impregnated with the scent arising from C. viscosa, prorepens, Sinclairi, and others."

The cultivation of Celmisias is by no means difficult; all they require is a soil well drained with sand or grit and the addition of some leaf-mould. Failing leaf-mould, well-rotted grass will serve the purpose. They scorn artificial manures. They dislike a dry soil intensely, and as cold and wet does not effect them, a cool, exposed position on the north side of a wall or rockery should suit them admirably. In their natural habitat many of the species grow where the atmosphere is always saturated with moisture.

Increase may be by division, or by the seeds which, in New Zealand, germinate freely, even while frost is on the ground. Celmisias would, I am sure, make a welcome and popular addition to gardens in this country, were it not for the fact, I am told, that much of the seed fails to germinate after its long journey across the water.

Of the many species and varieties, of which there are now over fifty, a goodly number stand out as distinct and ornamental garden plants. Practically all the species have white flowers, but two from the sub-antarctic islands are unique in that their disc florets are purple.

CELMISIA CORIACEA is perhaps the noblest member of the genus, with silvery leaves 18 inches long and 4 inches broad, and often forming plants 2 feet across. The flowers are borne singly on long stems, and some have been observed with a diameter of 5 inches. This species is the true Lint or Cotton Plant, and Dr. Fulton, of Dunedin, informs me that the soft lint-like tissues of the leaves were made use of as dressings for wounds in the early pioneering day of the colony.

C. **VERBASCIFOLIA** has a green upper surface to the leaves and a white edging. It forms plants as large as those of C. coriacea; but is easily distinguished from it, though hybrids between the two species often occur.

C. **TRAVERSII** is smaller in the leaf than the preceding, a buff-coloured tomentum clothing the under-surface of the leaves.

C. **ARMSTRONGII** has the silvery appearance of C. coriacea, but the leaves are narrower and more rigid.

C. **HOLOSERICEA**, a fine specimen of which is in the Edinburgh Botanic Garden, is a very free-flowering species, with glossy-green leaves, having a serrated edge.

C. **PETIOLATA** is rather striking, in that its leaves, which have a purple mid-rib, turn a metallic bronze colour in winter. Sometimes in its winter form it is mistaken for a different species.

C. **RAMULOSA** is rather remarkable in its habit of growth, for it forms a woody shrub with small leaves, which lay close to the stem.

C. **VISCOSA** has a rambling habit, with twiggy, low-lying stems. The leaves are 4 inches long and of a dull grey colour. The flowers are borne on fluffy stems.

C. **LINDSAYI** forms compact clumps and is free-flowering. The leaves are slightly canoe-shaped and about 5 inches long.

All the foregoing have broad-leaves, and the following have narrow leaves.

C. **LYALLII** has thin, wiry leaves, inconspicuous flowers, and at first sight may be passed by as a coarse grass in its native habitat.

C. **LONGIFOLIA** is perhaps the only non-endemic species, being found also in Australia. Its leaves are narrow, grey, and about 6 inches long. There are several varieties of this species.

C. **DENSIFLORA**, C. **SINCLAIRI**, and C. **PRORE-PENS** form good, low-growing clumps, the leaves varying somewhat according to the species.

Though the list is far from complete, I must not overlook those charming species which form clumps of rosettes, some not more than 3 inches to 6 inches high, and having beautiful silvery foliage, such as C. Hectori, which forms large, silvery carpets on the shingle slopes in the mountains of New Zealand.

C. **SESSILIFLORA**, a delightful species, with its light grey rosettes of stiff, narrow leaves one inch long, forms beautiful cushions up to 18 inches in diameter.

C. **ARGENTEA** is another species of similar habit, but has smaller leaves.

This list might be greatly lengthened, but the species named are sufficient to show how interesting the genus is. Personally, I have found no difficulty with their cultivation in New Zealand, and before leaving home in 1922 I had the pleasure of visiting the native garden of Mr. Jas. Speden, of Gore, an enthusiastic collector and an authority on Celmisias. His collection convinced me of the beauty of the genus, for, growing among choice Aciphyllas and dwarf Veronicas, were most of the species of these charming plants (see Figs. 2, 3, 4, 5, and Supplementary Illustration), perfectly happy in their cool, exposed, well-drained positions, and withstanding even severe winters and frosts of 10° to 18°. *James A. McPherson, Kew.*

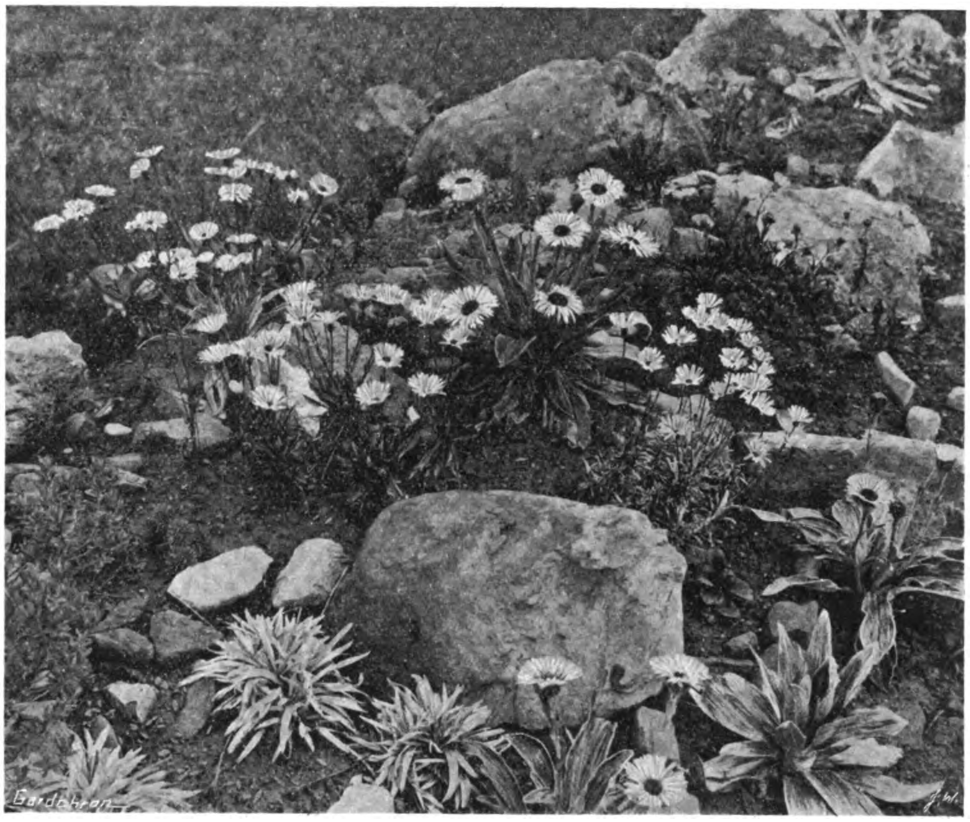


FIG. 4.—SPECIES OF CELMISIA: C. VERBASCIFOLIA, CENTRE, LARGE-FLOWERED; C. DISCOLOR, RIGHT CENTRE; C. PETIOLATA, RIGHT, IN FLOWER; C. LONGIFOLIA, LEFT BASE.

ORCHIDS OF 1923.

DURING the past year interest in Orchids has been well sustained. Of new hybrids, recorded as flowering for the first time, three hundred and fifty were registered in the *Gardeners' Chronicle* in 1923, and it is interesting to observe that a proportion were raised in the United States of America, on the Continent and in the Imperial Botanic Gardens at Tokyo, Japan, showing that while British hybridists, who have had a long start, still maintain the foremost position in Orchid raising, the pleasant work of hybridising Orchids has now a far more extended sphere than ever before. The promising combinations last recorded cannot fail to give a large proportion of distinct and desirable novelties, but some time will be required to reveal the real worth of a large number of them.

For the records of proved merit the best tests are the awards of the Royal Horticultural Society and those of the equally important Manchester and North of England Orchid Society.

The exhibitions of the Royal Horticultural Society have, on several occasions during the past twelve months, included outstanding groups of Orchids, especially at the early spring show, where Cymbidiums were so finely displayed; at the Chelsea Exhibition, and the special Orchid show in October. At these exhibitions most of the principal amateurs staged fine groups, those of Lt.-Col. Sir Geo. L. Holford, Baron Bruno Schröder, Sir Jeremiah Colman, Bt., Pantia Ralli, Esq., H. T. Pitt, Esq., and G. F. Moore, Esq., being superb, whilst the collections of the leading Orchid firms were equally good. The Royal Horticultural Society gave thirty-one First-Class Certificates and fifty-seven Awards of Merit to novelties, the number of the higher award being in excess of last year and that of the lower award under. Of the plants which received First-Class Certificates, especially fine were Cymbidium Alexanderi Rosalind, and C .Merlin, Westonbirt variety, of Lt.-Col. Sir Geo. L. Holford, K.C.V.O. (gardener Mr. H. G. Alexander), who also secured an Award of Merit for the very distinct C. Curlew var. Feather.

PANTIA RALLI, Esq., gained a First-Class Certificate for the yellow Cymbidium Castor var. Laburnum, Messrs. J. and A. McBean, a similar award for the stately C. Auriga, and an Award of Merit for C. Doreen. The only awards to varieties of species of Cymbidium were made to C. insigne rhodochilum and St. Andre, with richly coloured labellums, from Messrs. Sanders.

Cypripediums constituted an outstanding feature at the last two R.H.S. meetings of the year, G. F. Moore, Esq.. Chardwar, Bourton-on-the-Water, gaining five First-Class Certificates for varieties of his pedigree strain, including Gwen. Hannen, Prince Albert, and forms of C. Chrysostom. The history of this strain is reassuring to thoughtful hybridists. The foundation is the massive C. Christopher, Grand Duke Nicholas, for which Mr. Moore received a First-Class Certificate on January 5, 1915, and the noble type of C. Pyramus (Hera-Mostyn) raised at Chardwar. These take part in most of the types of the Chardwar strain, which has very large flowers of fine substance. Lady Aberconway and the Hon. H. McLaren obtained a First-Class Certificate for the chaste white C. Albion, Bodnant variety; Mons. Firmin Lambeau, of Brussels gained a similar award for the large and richly coloured C. Dulcis, Lambeau's variety. Messrs. Cowan and Co. also secured the highest Award for their showy C. Fletcherianum Antinea. Awards of Merit were made to C. Godefroyae leucochilum, Gatton Park variety, shown by Sir Jeremiah Colman, Bt.; to C. Phantasy variety Sobriety, shown by H. T. Pitt, Esq.; to C. Senator, shown by Messrs. Flory and Black, and to C. Warrior, H. Green's variety, shown by Messrs. Armstrong and Brown.

Dendrobiums have been cultivated keenly for years past by Sir Jeremiah Colman, Bt., and during the past year First-Class Certificates were accorded to Dendrobium Gatton Sunray, and D. Gatton Monarch, the latter being shown by Frederick J. Hanbury, Esq. The Ainsworthii class of Dendrobium has been well exploited, but there are rich classes in other combinations still awaiting attention.

Awards to Cattleyas, with the exception of Awards of Merit for C. Hentschelii shown by Mr. Pitt, and C. Pittportia, var. Lady Leon, shown by Sir H. Leon, were gained by professional growers. The perfect white C. Mrs. Gratrix, which secured a First-Class Certificate when first shown by Messrs. Sanders, and a similar award at Manchester when shown by Mrs. Gratrix, is one of the best new Cattleyas. The superb Cattleya Prince Shimadzu var. Olympia, C. Dr. Lacroze var. Excelsior, and C. Irene Our Queen, of Messrs. Flory and Black, all gained First-Class Certificates, the same firm also securing Awards of Merit for C. G. P. Walker and C. Tagus var. Cupid. Awards of Merit were also given to C. Aeneas var. Goliath, shown by Messrs. Cowan and Co. and to the remarkable C. suavior, Low's variety, shown by Messrs. Stuart Low and Co.

Only four Brasso-Cattleyas and the same number of Braso-Laelio-Cattleyas received distinction at the R.H.S. during the year, and only B.-L.-C. Truffautiana var. Triumph of Messrs. Low gained a First-Class Certificate.

Laelio-Cattleyas were never shown better than in the grand group for which Baron Bruno Schröder, on October 30, secured the large Challenge Cup and his grower, Mr. J. E. Shill, a Silver-gilt Lindley Medal, one of the best plants being L.-C. Mrs. Willoughby Pemberton raised at The Dell, this noble plant also gained a First-Class Certificate. Messrs. Cowan and Co., specialists in Brasso-Cattleyas and Laelio-Cattleyas showed two of the best novelties in L.-C. Hassallii alba var. Perfection and L.-C. Marina majestica, both plants of the highest merit. Awards of Merit were gained by the same firm for L.-C. Nora; by Mr. Pantia Ralli for L.-C. Aureole var. Renown; by Mr. E. R. Ashton, for L.-C. Faust, Broadlands variety, and by Messrs. J. and A. McBean for L.-C. Profusion, a showy and prolific hybrid.

Miltonias were well shown and Awards secured by Mr. H. T. Pitt for M. William Pitt; by Messrs. Charlesworth and Co., for M. Constance; and by Messrs. Sanders, for for M. Sanderae Unique and M. Butterfly var. Empress.

Odontoglossums were, as usual, among the successful favourites. O. Purple Emperor when shown by Mr. H. T. Pitt in his group on November 13 was awarded a Silver-gilt Lindley Medal, a fitting continuation to his success in securing the lesser Challenge Cup on October 30. Mr. Pitt's O. Llewelyn also obtained a First-Class Certificate, a similar award going to the handsome O. crispo-Solon Carmania and O. Orosius magnifica of Messrs. J. and A. McBean; Messrs. Charlesworth's superb O. Ithone gained a similar award, also the massive pure white and yellow O. Goldcrest of Messrs. Armstrong and Brown. Awards of Merit were made to O. Gatton Emperor var. Nero from Sir Jeremiah Colman, Bt.; to O. Purple Queen and O. Gorizia Imperial Purple from Mr. J. J. Bolton; to O. Llewelyn, in two varieties, from Messrs. Charlesworth; to O. Aurora var. Rajah from Messrs. Sanders; to O. crispum Esmeralda, O. Desdemona II. from Messrs. McBean; to O. Ernest Bristow from Messrs. Armstrong and Brown; and to O. Serapis from Messrs. Cowan and Co.

Only three Odontiodas gained First-Class Certificates, viz., O. Naomi from R. Gerrish, Esq., O. Duchess of York from Messrs. Charlesworth, and O. Radiant from Messrs. McBean. Awards of Merit were awarded to O. Brilliant from Mr. Pantia Ralli; to O. Colinge var. Rosemary from Mr. J. J. Bolton; to O. Rufus var. Wickham Beauty from Mr. Bird; and to O. Murillo, shown at Chelsea by Messrs. Cowan.

Odontonia Baroness Schröder shown by Messrs. Charlesworth and Co. on February 13 was well worthy of the First-Class Certificate awarded it; this firm also gained Awards of Merit for three other pretty novelties in this class.

Novelties in Sophro-Laelio-Cattleyas come slowly, only the showy S.-L.-C. Pervanch of Mr. Pitt and the S.-L.-C. Eileen of Messrs. Stuart Low securing Awards of Merit, similar awards were made to Vuylstekeara medea and V. insignis picta shown by Messrs. Charlesworth & Co. The only award made to a species was an Award of Merit to the floriferous, yellow Sophronitis Lowii when shown by Mr. Pantia Ralli on January 16. Many pretty and rare species have been shown by H. T. Pitt, Esq. (gr. Mr. Thurgood), whose success in retaining frail species, which must have been imported many years ago, is remarkable. Messrs. Sanders, Messrs. Stuart Low & Co. and others continue the successful culture of species the importations of which have practically ceased, therefore it is desirable that the retention of these species should be made secure in gardens by seeding the plants true to type.

The Manchester and North of England Orchid Society, which is supported by a large number of the oldest, best and most enthusiastic Orchid growers, maintained the high order of its exhibitions during 1923. The meetings of this Society never fail to attract good displays of superbly cultivated plants. Among those specially noteworthy during the past year may be enumerated Cattleya Mrs. Gratrix, Cypripedium Imperator Excelsior, C. Senator, Cattleya Visnu var. Snowflake, Laelio-Cattleya Mrs. Medo, all from Samuel Gratrix, Esq.; Cypripedium Godefroyae splendidissimum from Mrs. Gratrix; Miltonia Reine Elisabeth var. Roi des Belges from Mrs. Bruce and Miss Wrigley, who also staged a fine collection of their famous varieties of Lycaste at the March show. Other grand exhibits were Brasso-Laelio-Cattleya Jupiter var. Mrs. Hanmer, from A. Hanmer, Esq.; Vuylstekeara Memoria Joseph Charlesworth, from H. T. Pitt, Esq.; Odontglossum Helma and O. Leander, from P. Smith, Esq.; Miltonioda Harwoodii, Bolholt variety, from Captain W. Horridge; Odontoglossum eximium xanthotes var. Thelma, from Messrs. McBean; Odontioda Verulam, from Messrs. Sanders; Cattleya Triumphans var. Evansae, from Mr. J. Evans, and Brasso-Laelio-Cattleya Muriel var. Perfection, from Messrs. Cowan.

Both the Royal Horticultural Society and the Manchester and North of England Orchid Society are making arrangements for special shows of the large types of Orchids in 1924. These shows should be made widely known before their respective dates and thus help the Societies and Orchidists.

The following Orchids have been illustrated in the *Gard. Chron.* in 1923; Angraecum mirabile, January 13, p. 17; Cymbidium Merlin, Westonbirt variety, April 21, p. 213; Cypripedium Chrysostom Amy Moore, January 20, p. 35; group of eight of Mr. G. F. Moore's strain of Cypripediums, March 10, p. 133; Cypripedium Albion, Bodnant variety, October 27, p. 247; Cypripedium Prince Albert, Chardwar variety, December 22, p. 361; Disa sagittalis, September 1, p. 129; Odontioda Naomi, May 19, p. 272; Odontoglossum crispo-Solon Carmania, June 9, p. 321; Odontonia Baroness Schroder, February 24, p. 107; Odontonia Olivia, June 2, p. 302; McBean's Orchid group at Chelsea, June 2, p. 303; Odontoglossum Broteham, Broadlands variety, October 20, p. 229; Odontoglossum Desdemona II, var. Rubens, November 10, p. 275; Sophronitis Lowii, January 27, p. 45, and Cypripedium Prince Albert, Chardwar variety, December 22, 1923.

Country-side Advertisements.—We are glad to learn that in deference to the steadily-growing feeling against the use of advertisements which disfigure the country-side and spoil charming views, the British Petroleum Company is gradually removing its signs throughout the country. Other firms which advertise extensively have already removed their field and road-side advertisements, and it is hoped that public opinion will become so strong that ere long all signs and advertisements which detract from the beauty of the country-side or offend in other ways will disappear.

ALPINE GARDEN.

POTENTILLA NEPALENSIS.

THE growth of Potentilla nepalensis is somewhat lax but when carefully cultivated on poor, hard soil it does not grow so straggly as in a rich compost nor will it send up its flower stems to a height of two feet. The variety Miss Willmott is superior to the type, rarely exceeding eight inches in height and sometimes less and is equal in every other respect to the best forms of the original species. It is a charming rock plant, deriving a good deal of its value from its long period of bloom, being, like the type, frequently in flower from July into late October or November, according to the time of the advent of frost.

The variety named after Miss Willmott should be planted in a sandy, gritty, stony soil in the rock garden, either in full exposure to the sun or in partial shade. I have cultivated the plant successfully in an almost due east exposure, screened from the sun at all times except in the early morning. This Potentilla has also been known as P. formosa, under which name it still appears in some catalogues. It may be raised from seeds or propagated by division.

CAMPANULA RADDEANA.

THERE is an almost superabundant number of dwarf-growing Campanulas suitable for the rock garden, however small, and even good species and varieties may escape the notice of those seeking the best alpine flowers so that they may possibly neglect this Campanula, which I consider one of the prettiest and best of these dwarf Bellflowers. It rivals, and, indeed, surpasses in attractions several of the "miffy" subjects which test not only the skill but the patience of the alpinist, while it also possesses the inestimable virtue of being easy to accommodate and of calling for no special treatment. It may be cultivated successfully on the level in the rock garden in sandy, gritty soil in a situation exposed to the sun; it seems happy in the moraine, and it is very much at home in the crevices of the rocks or in niches in the wall garden.

C. raddeana is of neat, yet spreading habit, and grows to a height of from six to nine inches, producing neat leaves and numerous large (for the size of the plant) deep purple-blue or violet flowers. It is easy to increase by division, or seeds may be procured and sown under glass in the spring. For further commendation of this little Campanula I am tempted to quote a little of what Mr. Reginald Farrer told us:—"The flowers are of a most glorious violet, in design like those of a Harebell, but larger and fuller, gracefully carried on stems of nine inches or so, while the basal leaves of the tuft are specially attractive—round, glossy, heart-shaped."

LINARIA ANTICARIA.

THIS Toadflax is a pleasing little plant growing some four inches high, with narrow, glaucous leaves and numerous small flowers of the characteristic form of the Toadflaxes, and varying in their ground colour from white, through shades of buff and pale yellow, to pale pink, and prettily reticulated. It is a pretty little annual for the rock garden and is useful as a carpeter, for the space occupied by dwarf, early-flowering bulbs suitable for the rock garden, such as early spring Crocus species. It is such a shallow rooter that it does no injury to the corms of the Crocuses.

Unfortunately the name of this plant seems to have disappeared from even the few catalogues in which it was formerly quoted and I should be glad to know if it is still obtainable. Seed of it was offered by certain nursery firms for a considerable number of years and I raised seedlings from a packet of seed, but I have since lost the plant. *S. Arnott.*

THE ASH-LEAVED SPIRAEAS.

Included in the genus Spiraea is a small group of deciduous shrubs (Sorbaria) whose primary distinguishing feature is their long and elegant Ash-like, or pinnate, leaves. Some of the most beautiful of the whole race of Spiraeas are among these, and they are of robust habit, hardy enough for almost anywhere and good doers in any rich, well-drained, moist loam with full exposure. All may be easily increased from suckers, which are thrown up about the base of the parent plant, or by division.

The oldest of this section known to our gardens is S. sorbifolia, a shrub of some 4 ft. to 6 ft. in height, with leaves of a fresh green, usually less than 12 ins. in length. It can be readily distinguished from others mentioned here by its comparatively small size, the much stiffer habit and somewhat short and erect pyramids of white blossom which are produced in the late summer. S. sorbifolia comes from Siberia and Japan, and there is an alpine form (var. alpina) from the same regions which is only about half the height of the type.

S. Lindleyana is considered by many to be one of the most attractive of the genus. It is an exceedingly graceful shrub, with a free, spreading habit and one that will attain to a dozen or more feet according to conditions. Being a native of the Himalaya it is rather more fastidious than most others of its tribe in regard to soil, a cold, stiff root-run and bleak climate being inimical to its well-being. But S. Lindleyana may generally be considered a robust and long-lived shrub, and its beautiful, Fern-like leaves, about 15 ins. in length, and branching panicles of ivory-white flowers, which are produced from midsummer to autumn, afford a combination of rare charm.

Akin to the last-mentioned is another very lovely species, S. Aitchisonii (Sorbaria augustifolia) which was discovered by Dr. Aitchison in 1879. It is a native of Afghanistan and can be distinguished from S. Lindleyana by its narrower, hairless leaves and glossy, wine-red bark. The habit is somewhat stiffer and sparser and it does not usually exceed 8 to 9 ft. in height. S. Aitchisoni is also hardier than Lindleyana; it is a vigorous and healthy subject under most conditions. Its handsome leaves and drooping sprays of ivory-white flowers, which may be a foot or more in length, are extremely attractive. Even when in the bud stage the inflorescences of this species have an ornamental value of no little merit, and there is a substance and quality in both foliage and flower which render these even more effective than those of its nearest rival.

The noblest of this group as well as the most elegant is undoubtedly the tree-like S. arborea, introduced from China by Mr. E. H. Wilson. This species is also closely related to Lindleyana, but it is much larger in all its parts, a species that stands by itself, asserting its superiority even in a genus crowded with notable species. This not only on account of its stature (up to 20 to 30 ft.) and extremely vigorous and rapid growth, but because that elegance which is so marked a characteristic of the members of this group is, in S. arborea, developed to the utmost perfection. The arching, whip-like wands which will shoot up to a dozen or more feet in a season, the enormous, yet delicately beautiful, pendant leaves and the huge and flossy flower heads of scintillating white which droop from the extremities of these growths in the late summer combine to make an object of unsurpassed grace and loveliness. This fine subject needs a large open space where there is ample room for development and none more thoroughly deserves it.

All the above-named Spiræas, as has been suggested, enjoy rich soil and I find that an annual top-dressing of half-decayed manure and well-rotted vegetable compost assists them. Pruning is by no means always necessary, but as they flower on growths of the current year it is always possible, and often advantageous, to cut back the terminal branches to hard wood in winter or spring. At the same time old and worn-out stems can be removed from the base so as to give more space for any vigorous young shoots that may have appeared, or to encourage the production of these. *A. T. J.*

THE MIXED FLOWER BORDER.

The border such as I recommended and described on page 354 of the *Gard. Chron.* for 1923, is intended to yield a long succession of changing colour during all the season of vegetable activity. The kind that I now wish to draw attention to is old fashioned and depends for its interest on the beauty of individual plants without taking into consideration the effect of the border as a whole.

I recollect making and planting one such border in 1873 which gave great satisfaction, though I only saw it while on a visit to the garden in 1875, when the plants had not yet had time to grow sufficiently to exhibit their full beauty. The border was in a position to display itself well, and was previously planted with Cabbages and other common vegetables. I pointed out the capabilities of the spot were it made into a flower border to my employer and he agreed to let me go on. I do not remember exactly how deeply it was trenched, but we went to the bottom and transported to it a big heap of soil that had lain inert for some years in a corner of the garden, and incorporated it with that of the border with the result that a well known horticultural writer of that time thought it worth while to write a special article upon it. As an instance of its fertility, Delphiniums grew to a height of eleven feet. I paid a visit to Mr. T. S. Ware's nursery and secured a selection of good plants, ranging from very tall ones to dwarf Campanulas, Saxifrages, Acaena, Hellebores, Iris cristata, and such like. I am sure nursery stuff was smaller in those days than now, or the plants would have grown into good flowering material much sooner. I did not expect over much until the third year. Each plant was arranged so that there was a quite apparent space unoccupied all around it. Each, therefore, was individualised, and when in flower it monopolised the attention of the onlooker to itself. When one came to a certain plant none of the other plants was seen, and it drew the delight of the flower-lover to itself alone and it is only in a border of that kind that this is possible.

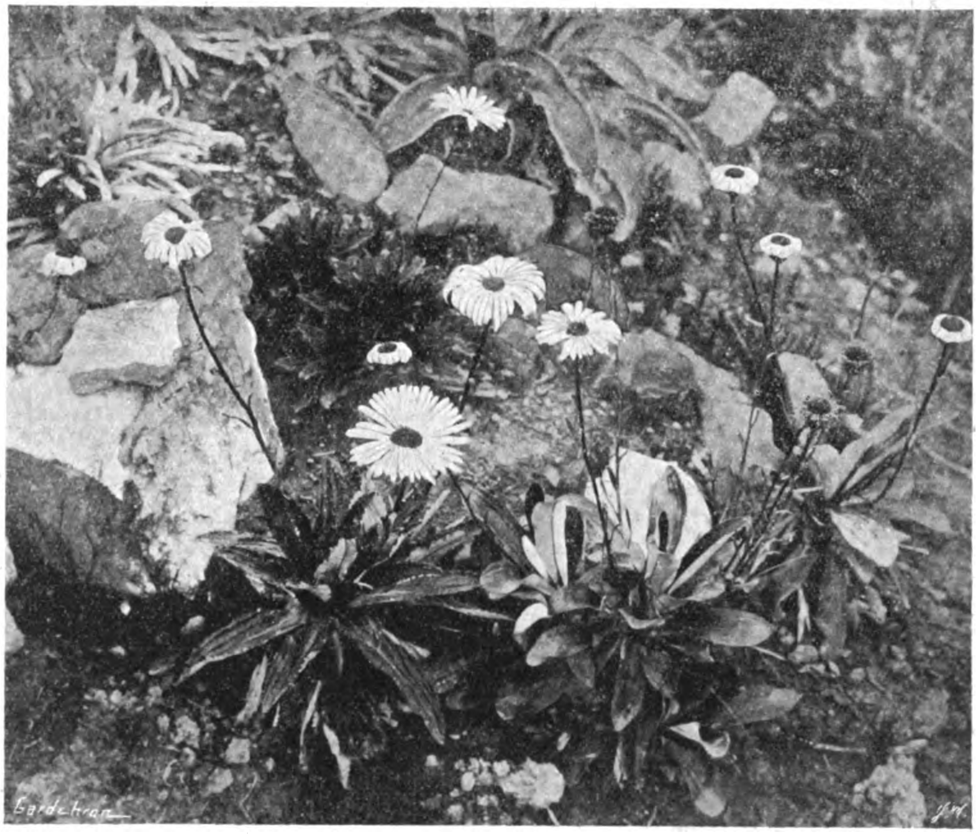


FIG. 5.—SPECIES OF CELMISIA: C. PROREPENS, CENTRE; C. LINDSAYI, RIGHT; C. DENSIFOLIA, LEFT (SEE P. 6.)

Our feeling of "form" had not yet developed in those days, and the border from back to front was graduated so that the slope showed as few inequalities as the nature of the plants permitted. Staking was a serious matter, plants which required support having each stem tied to a stake. The soil was carefully "pointed" over in spring, the object being to make the surface smooth without going deep enough to cut any roots, which were almost sacred. Now one would be sure to cut the roots in order to produce a more floriferous growth, and at the same time to place within reach of the new roots a modicum of fresh plant food. There were modifications of this kind of border. Those who were fond of florists' flowers left spaces for these, the positions being prepared by the introduction of a spadeful or two of prepared compost. Some went the length of introducing tender plants, here a new Geranium, there a Verbena or Salvia, but always only one plant, and like the rest, isolated

With the enormous wealth of herbaceous plants in commerce at the present time a border of this kind may be made very much more interesting than in bygone times. And having possessed our minds of the beauty of form one need not be afraid to vary somewhat the smooth flowering surfaces of the border by allowing plants attractive in form to show themselves above their less splendidly endowed neighbours.

There was another stereotyped principle to be followed in the arrangement of plants, the non-observance of which need cause no one to-day to lose an hour's sleep, as it must have been the cause of much insomnia in the past. I refer to the placing of plants of a colour, but which flowered at different times of the year, in juxtaposition. The idea being that if on a given spot a plant with a yellow flower bloomed in spring, for that reason yellow must follow there all the year round. There might have been some show of reason for that at a period when the choice of colours was smaller by very much than at present, and therefore if an attempt is made to add colour effect to what after all is a collection of plants intrinsically interesting in themselves, be very sure it can be secured without going to the lengths of dividing the border into colour sections. One evil in such a border is worth mentioning. Very little labour comparatively was required in its upkeep, and it often happened that that little was reduced so much as to be none at all. Hence it became very easily an eyesore. *R. P. Brotherston.*

A NEW DISEASE OF SWEET PEAS.

According to Mr. W. J. Dowson, in a paper read before the British Mycological Society, it would seem that the Sweet Pea has fallen a victim to yet another parasite for during the last two summers complaints have been received from a grower of Sweet Peas under glass of a severe attack of mildew-like fungus. On the majority of leaves examined and upon the wings of the stem was a white, meal-like powder; some of the leaves were almost covered on both sides, while others bore only a few spots the size of a sixpence on one side. Those on the wings of the stems were far less numerous and were smaller and oblong in shape. The surface of the attacked leaves immediately below the meal-like powder was a pale buff colour. The leaf surface of the smaller spots was nearly white, but the largest and oldest presented a faint brown tinge after the white powder had been scraped of. The brown discoloration was more pronounced upon the spots of the stem and was similar to "streak" in appearance.

Microscopic examination of the meal-like powder showed it to be composed of the spores of a fungus and the delicate thread-like hyphae which bore them. The spore-bearing hyphae were arranged in tufts and commonly emerged through the stomata. The spores were neither those of Erysiphe Polygoni nor of Peronospora Viciae; but resembled, in all but colour, those of Hormodendron cladosporioides. Erysiphe Polygoni is the very common, powdery or true mildew of garden, field and Sweet Peas; Peronospora Viciae is sometimes found on field Peas, more often on the garden Pea, but has not been recorded so far on Sweet Peas. Hormodendron cladosporioides is known only as a saprophytic, olive-green mould and is another form of the very common fungus Cladosporium herbarum. The name and systematic position of the fungus have not yet been determined, but experiments carried out continually since August 1922 prove conclusively that the fungus concerned is a parasite capable of causing serious injury to Sweet Peas grown under glass.

During the autumn and winter of 1922 the fungus was grown on a series of seedling Sweet Peas in the cool greenhouse. At first the seedlings were covered by a bell jar after the spores of the fungus had been dusted on to the leaves; but later it was found that the bell jar was unnecessary, provided the temperature was high enough. Without the bell jar the spots developed more slowly and never spread over the whole surface of the leaves.

The most satisfactory and convenient place for making further observations on the fungus proved to be the Orchid house where the temperature was always high and the air laden with moisture — conditions, which had been apparently maintained in the glasshouse from which the original material had been obtained. Under such conditions, the first sign of the presence of the parasite was the appearance of numerous very small (pin-point) white to pale buff-coloured spots on the leaves. These were very like those caused by Aphis, and probably for the same reason, for they consisted of a few dead cells surrounding the invading fungus hypha. Ten days elapsed from the time the spores were placed on the leaves until these spots were noticed. They became larger and were at first angular in outline, being limited by the smaller veins of the leaves. The small spots soon coalesced and a larger spot was thereby produced, the margin of which was faint and not very distinct. The colour of the spots remained constant and was generally very pale buff or almost white.

A week or ten days after the first spots appeared, spores were produced in little heads over the surface of the enlarged spots, and continued to increase in number to such an extent that, after three weeks from the start, the surface of the leaves was nearly covered with the white spores, thus giving the meal-like appearance first noticed.

Where or in what manner this white mould originated is not certain, but towards the end of the summer of 1923 damaged Sweet Peas grown in the open, in more than one district, were found to bear similar but smaller spots on the living leaves and stems. The infected leaves were never the youngest at the top of the plants, but always those lower down nearer the ground, where shade and moisture would be greater.

It would seem likely that this white mould has been present, though unobserved, for some years, and that under favourable conditions such as much moisture, shade and high temperature the white mould flourishes to such an extent as to become quite obvious.

In the open it is doubtful if under the usual climatic conditions the Sweet Peas are damaged much by the presence of the mould. Under glass, on the contrary, there can be no doubt that with faulty ventilation, whereby the atmosphere becomes saturated with moisture, and with a high temperature this white mould can be a very serious menace to the health of the Sweet Pea.

Besides paying careful attention to the conditions of cultivation flowers of sulphur should be dusted on to attacked plants to act as a fungicide.

DAFFODILS.

The *Transactions* of the Royal Caledonian Horticultural Society for 1923, recently issued, contains a reprint of a paper on "Daffodils," presented at one of the monthly meetings of the Society during 1922 by The Brodie of Brodie. The author advises the planting of the bulbs as early as possible, the end of July and during August being the best period, as at that time the bulb is more or less dormant. The use of farmyard or stable manure is condemned, the author recommending soil which has been previously manured for Potatos or other vegetables, and fine bone meal and wood ashes applied as a top dressing in early November. The soil should be kept in an open condition throughout the period of growth. The author foresees a good future for the medium-crowned white varieties as market flowers, and there was ample evidence of their coming popularity in Covent Garden last spring. Some very useful information is imparted under the section dealing with the raising of Daffodils from seed.

Would-be Daffodil raisers are advised to work with the finest varieties, using at least one parent with a tall stem. Moreover, when the seedlings flower the very best only should be retained. The Daffodil is one of the flowers of the day, and to the commercial grower it is of importance in providing an abundant supply of flowers from early January to the end of May. The hybridist should remember that a variety to gain public popularity must have good long stems and the colour should be clear. The poise of the flower is also important and should be such that it is set at a right angle to the stem, so that when bunched or set in vases it may be seen to the best advantage. Moreover, the perianth segments should possess substance to enable them to withstand the many handlings the flowers experience from the time they are cut until they leave the retail florists.

IMPERIAL FORESTRY CONFERENCE.

(*Continued from p.* 340, *Vol. LXXIV.*)

PLANTING ON THE PRAIRIES.

The term prairie conveys the impression of a flat or undulating plain stretching to the horizon in every direction and absolutely devoid of tree growth. So far as the Canadian prairies are concerned this impression is not quite justified by facts at the present day, although it may have been so at an earlier date. The prairies to-day are not treeless, but the natural tree growth they carry does not give rise to much enthusiasm on the part of the traveller or local inhabitant. Clumps of Aspen Poplar, Willow, Scrub Oak, and occasionally Englemann and White Spruce, &c., may often be found, and although these clumps do something to break the monotony of the landscape, a close view of them shows that they consist of small, stunted trees rarely exceeding twenty feet in height, and never likely to attain a large size or great age.

Two theories have been formed to account for the poverty of tree growth in the prairie districts. One of these assumes the scanty rainfall and the alkaline nature of the soil to be the detrimental factors, while the other seeks the cause in the frequent fires which swept over the surface when the Indians were in the habit of firing the grass for various reasons connected with warfare or hunting. Schimper, in his *Plant Geography*, ascribes the treeless condition of the prairie to a dry winter with northerly winds, and to a low summer rainfall. Without going closely into details, it is probably correct to attribute the absence of trees to a combination of unfavourable conditions which have been prevailing for many centuries, some of these being climatic and therefore incapable of being remedied, and others due to causes which can be controlled by man.

When the Indians, and the herds of buffaloes which fed them, were exterminated by European settlers, the prairies were gradually brought under cultivation and became the chief Wheat producing districts of North America. Fires became less frequent or were checked by cultivated land, and the natural scrub began to spread on banks and broken ground. Towns sprang up and a population arose which was obliged to spend the whole, or the greater part, of the year on these vast stretches of open country. Enterprising individuals then began to experiment with shelter trees, and various attempts were made to improve the bleak and bare condition of the landscape. Many of these pioneers were regarded as insane by their neighbours, the general impression being that trees never had thriven nor would thrive in these regions. In spite of many failures a few successes were ultimately attained, and it gradually dawned upon the more intelligent individuals that the failures were possibly due as much to unsuitable species or faulty methods of cultivation as to climate or soil.

In the meantime the Federal Government of Canada was setting up a Forest Branch for the Dominion, and one of its first acts was the establishment of a tree-planting division for the prairie districts, with headquarters at Indian Head, near Regina, the capital city of Manitoba. A residence was built in 1901 for the Superintendent of the division, Mr. Norman Ross, and three years later a nursery was started and experimental plantations laid down. In less than twenty years Mr. Ross' labours have resulted in what was practically a treeless plain being converted into a wooded landscape, which, if one were suddenly transported there, might easily be mistaken for some well-kept country residence in the South of England. On an area of just under 500 acres, plantations and shelter belts have reached a height of from thirty feet to forty feet, and fresh species are being continually tried, many of which are likely to be successful in prairie planting.

One of the first species experimented with, and proved the most successful, was Scots Pine, which has adapted itself to the soil conditions better than many indigenous trees. A variety of Russian Poplar (Populus Wobstii) is regarded as the most useful broad-leaved tree of quick growth, although Birch, American Elm, Ashleaf Maple and Caragana form the groundwork of all shelter belts and plantations on doubtful sites.

At the present time the Indian Head Station contains 160 acres of nursery ground, 160 acres of experimental plantations, and 160 acres of farm crops. The whole of the nursery stock is used for distribution to prairie farmers, partly as free grants and partly for sale. The recipient of a grant must comply with certain regulations regarding fencing, preparation of ground, setting out the trees, keeping a certain distance from buildings, etc., and must carry out any instructions issued by the Forestry Branch from time to time. To begin with the planting of Conifers is not encouraged, as they do not succeed on alkaline soils so well as broad-leaved trees. Settlers who wish to plant them, however, may purchase, so far as stocks will permit, at prices ranging from three to four dollars per hundred.

As an indication of the increasing use made of this nursery it may be stated that the number of trees and cuttings distributed in 1901 was 58,000. In 1917 the number was 7,664,000: while the number of applicants increased in this period from 47 to over 10,000. The plantations laid down now number 40,000, which are valued at over £2,000,000, while the total cost incurred by the Dominion has not exceeded £200,000, or an average of £10,000 per annum. Apart from actual money values the importance of the work lies in the effect that these plantations produce upon the landscape in general, and upon individual homesteads in particular. A homestead surrounded by trees always provides an objective nearer than the horizon upon which the eye can rest. By means of the shelter afforded by belts, flowers, fruit and vegetables can be cultivated, and the settler comes to look upon his residence as a home, and not merely as a shelter from wind and snow, which he hopes to vacate at the earliest possible moment.

Apart from the economies and æsthetic importance of prairie planting, the subject is one of considerable scientific interest. One of the most puzzling facts connected with the transfer of plants from one region to another is the impossibility of anticipating results. At Indian Head, for instance, three Conifers stand out prominently as suited to prairie conditions—Scots Pine, Siberian Larch and White Spruce. When planting the same species in the British Isles, the first-named is a success as an indigenous species, the second is an absolute failure, and the third appears to be equally at home in the dry, cold winter and hot summer of Canada as in the humid conditions prevailing throughout North-Western Europe. Numbers of other examples similar to the above could be given, and one often wonders whether the ecologist is always correct in his diagnoses of factors which account for the existence or absence of various species in a particular tract of country. No doubt summer conditions are vital in some cases and winter conditions in others, but exactly how they operate it is difficult to see. *A. C. Forbes.*

(*To be concluded.*)

[According to Bailey's *Standard Cyclopedia of Horticulture*, Populus Wobstii has very viscid buds. The leaves are from four to six inches long and two inches broad, lanceolate, with the widest part about the middle, narrow but rounded at the base, gradually tapering towards the bluntly acuminate apex; slightly pubescent, white beneath, ciliate and crenate-serrate. The petiole has a few scattered hairs, and the branchlets are glabrous. Bean, in *Trees and Shrubs Hardy in the British Isles*, states that Populus Wobstii is considered to be a hybrid between P. tristis and P. laurifolia. —Eds.]

CULTURAL MEMORANDA.

PLANTING ORCHARD TREES.

Orchard trees, whether bush or standard, may be planted square in each direction, which will, in large plantations, allow room for horse cultivation. Bush fruits if included may be grown between the rows. The planting of standard and bush Apples and Pears in separate breaks is to be recommended. Cox's Orange Pippin and other varieties that are not self fertile should be planted near free setting varieties.

The distance apart for planting Apple trees varies from twenty feet to thirty-five feet; the space is largely regulated by the amount of small fruit grown in association with the trees. Vigorously growing varieties may have even a greater distance than the maximum recommended above. With an average distance of 24 feet the number of trees required per acre would be 75. In planting new orchards protection from cold winds should be provided. A belt of quick-growing trees, preferably evergreen, should be planted in exposed places. The Douglas Fir is often used as a wind break to fruit trees.

MANURING.

The manure heap should be turned over regularly, and when the dung is sufficiently short and mellow it may be wheeled on the ground on frosty mornings. A liberal dressing should be given to bush fruits, such as Currants, Gooseberries, Raspberries and Loganberries.

The manuring of Apples and Pears should be governed by the age of the tree, the condition of the soil, and the length of period it has been planted. Many trees that require lifting would not need that attention if surface manuring had been practised, for with manure on the surface the roots would not grow deeply in search of food.

PRUNING NUT BUSHES

Nuts are usually trained as open bushes and sometimes as cordons. They are useful for planting where fruit trees would not succeed, such as on dry, sloping ground. The Kentish Cob, and its variety Cosford, also Kentish Filbert, are largely grown for market. Duke of Edinburgh is another good flavoured sort.

In pruning nut bushes restrict the strong, woody growth, keeping large specimens to moderate proportions. Bushes received from the nursery should be pruned similarly to Black Currants, and planted 10 feet to 12 feet apart, and in the case of standards up to 15 feet apart. In woodland districts, or where rats and squirrels find harbour, it is not any easy matter to choose a suitable site for cultivating large areas of nut trees. *H.*

ANNUALS.

Schizanthus, Clarkias and other annuals raised from seed sown during September, and which until now have been growing in large 60 or 48 sized pots, should be ready for shifting into larger receptacles. Whether they need potting will depend largely on their present condition; if the pots in which they are growing are not well filled with roots it would be wise to defer re-potting them for a time. They should be given cool airy conditions at all times. Where, for any reason, annuals of this class were not sown during September, they may, with advantage, be sown early in the New Year. *C.*

CUCUMBERS.

Cucumber plants will now require plenty of heat and moisture; the growths should be kept well thinned and the fruiting shoots that are retained tied to the supports. Top-dress the bed occasionally with rich soil, and do not overwater the plants. Admit a little air at the top of the house on bright mornings, but close the ventilators early in the afternoons, and damp the floors with diluted manure water in the evening. *M.*

HARDY FLOWER BORDER.

PLATYCODON GRANDIFLORA.

This is a fine hardy perennial, growing from 1½ foot to 2 feet tall, and flowering from June to August and September. The flowers are large and of great substance; they are freely produced on stout stems, and similar in colour to those of Clematis Jackmanii. The inflorescences are of compact habit and valuable for cutting. The white variety is equally showy, and thrives in any ordinary, well-drained herbaceous border with a sunny situation.

VERONICA LONGIFOLIA SUBSESSILIS.

This most noble of all Veronicas is beyond question the showiest and most beautiful of all blue-flowering perennials and should be included in all collections of hardy border flowers. The plant is extremely hardy and will thrive in almost any soil or situation, it flowers from May to August. The flowers are borne in dense spikes which form a veritable cloud of the richest deep-blue imaginable, pleasingly set off by the dark green, attractive foliage *L.*

VERBASCUM NIGRUM ALBUM.

The white variety of Verbascum nigrum is not well-known in gardens, although it is an old plant in cultivation. The typical V. nigrum is a native of Britain and other parts of Europe, but is inferior in beauty to the variety, which has good white blooms ornamented with purple stamens. The plant is stated to grow from two to three feet high, but with me it has generally grown taller than this. The lower leaves are large and stalked; they are, on the whole, rather coarse-looking, while the stems leaves are smaller, stalkless, and more pointed. The inflorescence forms a spike closely set with flowers, and lasts in bloom for several months *S. A.*

VEGETABLE GARDEN.

ONIONS FOR PICKLING.

I venture to add a note or two to amplify the opening paragraph of Mr. S. B. Dicks's, very interesting historical article on page 341, vol. lxxiv, about Onions for pickling. He appears to suggest, that because neither Miller in his *Dictionary* (1759) nor Justice in his *Scot's Gardeners' Director* (1754) made any allusion to Onions used for pickling, these bulbs were never, or hardly ever, used at that time for pickling. If my friend had gone about fifty years further back he would probably have been right if he had written 'never'; for John Evelyn in his *Acetaria* (1699) and its Appendix devotes a considerable space to "Pickles," but there is no mention of Onions. This is striking since there are receipts for pickling Ashen-keys, Artichoaks, Asparagus, Beans, Broom-buds, Elder, Collyflowers, Cucumbers, Limons, Melons, Mushrooms, Nasturtium indicum, Potatos, Purselan, Radishes and Sampier. However, before the fifties of the eighteenth century came, pickled Onions would appear to be fairly well known, for in *Adam's Luxury and Eve's Cookery* (1744) full directions are given under the heading of "How to pickle small Onions," which correspond in every detail with the method used in these parts by our cottage housewives fifty to sixty years ago. As this book was seemingly written for more or less humble folk, it is possible that pickled Onions were not any more fashionable then than they are now; hence the omissions of Miller and Justice. Nevertheless, in 1769 Mrs. Elizabeth Raffald, who wrote for "Gentlemen's Families," includes a Receipt in her book, *The Experienced English Housekeeper*. It is more refined than in the earlier one to which I have alluded. Bay leaves are to be used by those who like the taste. *Joseph Jacob.*

HOME CORRESPONDENCE.

Price of Fearn's Pippin Apples.—It is not surprising to learn that "Market Grower" (p. 297, vol. lxxiv.) made such a good price of his Fearn's Pippin Apples, as I saw a lot of that variety a short time since in the market at Kingston-on-Thames, labelled "English Cox's Orange," 4d. per lb. Is there no means of stopping this deception? it creates a bad name for our best English Apples, and the markets get flooded with foreign produce. Another plan adopted by the stall holders also requires attention; this consists in facing up the heaps with very fine fruit and supplying customers with small fruits from the back of the heap. If boxing became general one could demand fruit of a certain size; at present the public has to take what it can get. *W. H. Divers, V.M.H.*

Veronica salicifolia.—My friend Mr. Brotherston is, I think, rather hard on my native county (p. 355, vol. lxxiv.), but he has lived much longer in it than I have, and therefore knows more about its climate than I do. But I confess I was not a little surprised to read his statement that his experience of Veronicas was that "there are only three sorts really hardy and that on the East Coast." I have a greater number in my mind as perfectly hardy in Midlothian, and I should like very much if Mr. Brotherston would give us the names of the three that are "really hardy" on the East Coast. As to Veronica salicifolia, one requires to be very careful as to what one is dealing with. As Mr. Bean points out in *Trees and Shrubs Hardy in the British Isles*, V. salicifolia "has hybridised very freely with other species, and some of the fine garden varieties are descended from it." Quite so; and is one always certain in dealing with V. salicifolia that one is not dealing with one of these "garden varieties"? The tender V. Andersonii, once so popular as a summer-bedding subject, is a hybrid of this species and V. speciosa. Everyone who has grown these Veronicas knows that V. speciosa is a very tender species, and all its progeny inherit, as Mr. Bean points out, "more or less of its tenderness, so that in all but the warmest counties of the British Isles they need winter protection. A variety called Autumn Glory, possessing, however, little of the 'blood' of V. speciosa, is an exception. It is one of the hardiest and best. . . ." (Vol. II., pp. 639--640). I trust that Mr. Brotherston will favour us with the names of the three species, as I feel that this is a point which requires to be made clear. As I mentioned in my communication, Mr. M'Gran states that V. salicifolia is "exceedingly hardy" in the neighbourhood of Kilmarnock, in Ayrshire, and if this be so, it seems to me strange that it should be tender in East Lothian. *A. D. Richardson, Edinburgh.*

[All will regret that Mr. Richardson's questions will for ever be unanswered by the venerable gardener to whom they are addressed, for, as will be seen from our obituary column, he has passed into the great beyond.—EDS.]

Soil Acidity.—It is not at present possible to explain cases such as that cited by Mr. E. Horton on p. 312, vol. lxxiv, in any simple way. Each requires investigation on a basis of all the data available. The soil conditions are evidently within the limit demanded by both plants, and it is quite likely that the explanation suggested by him is the true one. Were the soil 'sour,' the Turnip crop would be very susceptible to attack by the 'Finger and Toe' organisms. *L. M. C. R.*

Old-time Garden Apprentices.—I was much interested in reading the note written by Mr. W. Irvine (p. 370, vol. lxxiv.) respecting his apprenticeship. At the age of fourteen I was bound an apprentice to a firm of nurserymen, in the year 1890, and paid a premium. My wages were 3s. 6d. per week the first year 5s. 0d. the second year, and 7s. 0d. the third and last year of the term, with no other allowances. The hours were 6 a.m. to 6 p.m. Saturdays were generally busy days, owing to the local market being held on that day. Apprentices were certainly not coddled, and had to take their full share of any work, rough or smooth, that was on hand. During the winter evenings a few shillings were earned by sorting seed Peas at a rate of from 8d. to 10d. per bushel. Leaving at the expiration of my term, I served for a time as improver under the late Mr. H. Marslen, at the Isleworth branch of the then famous nursery of Messrs. Chas. Lee and Sons, of Hammersmith. Mr. Marslen was an expert propagator of hard-wooded plants. Space will not permit a further review, but I often think of past days, of strict discipline and exacting methods which were the general practice in well-managed nurseries and gardens. *Colin Ruse, The Hyde Gardens, Nr. Luton.*

Erinacea pungens.—It may be of interest to those who read the excellent note on Erinacea pungens on page 339, vol. lxxiv, to mention that it appears to be quite hardy so far north as Edinburgh, but I cannot recollect seeing it further north than that in Scotland, although I have no reason to think that it will not thrive. Good plants are most attractive, either in or out of bloom. The late Mr. Farrer stated that it was "perfectly hardy and happy into the farthest North in deep light soil and in a hot exposure." I do not know, however, what that gifted writer considered "the farthest North." E. pungens is a native of limestone districts, and is better treated with lime in some form or other. *S. Arnott.*

Loss of Scent in the Musk (*see* p. 342, vol. lxxiv).—Might not the reason for this be that there are two varieties, the one smooth-leaved and unscented, the other rough-leaved and scented. Years ago in Warwickshire I found two varieties of Musk growing amongst stones: one kind was smooth-leaved and had no scent, and the other, which I collected and potted, had a strong scent and a very rough leaf. It might be that the unscented kind has superseded the scented variety. *E. M. Hewat, Langford.*

Weather Lore.—In your issue of December 22, Sir Herbert Maxwell wrote concerning his neighbour's belief in what they call "feeding a frost," from which he deduces that there is "long hard cold" yet to follow during this season. Now, his Scottish weather-lore has filled me with astonishment, for in Derbyshire and Yorkshire we have proverbs of a distinctly opposite tendency. For instance:—"If there's ice before Christmas to carry a duck, the rest of the season is all slush and muck"; and—"If there's ice before Christmas to carry a goose, there won't be enough to carry a duck afterwards." These conditions, it will be remembered by all, have been distinctly carried out during the past few years, and I have watched for results, during the past forty, without finding their wisdom stultified. In this most eccentric of seasons, therefore, I venture to hope for a continuation of Yorkshire's wisdom: in which, I daresay, Sir Herbert, laying aside national prejudice, will concur with me! *William Arkwright, Wembury, Plymouth.*

Bokhara Clover.—I read with interest the short article on Bokhara Clover by Mr. A. J. Pieters, Washington, U.S.A., in *Gard. Chron.*, December 1, 1923, p. 326, and in the main I quite agree with it. I would like to refer Mr. Pieters to paragraph four of my note in *Gard. Chron.*, p. 85, vol. lxxiv, which affirms the main points for which he contends. The object of my article was to show the absurdity of the claims put forward for this article in a crop eight feet high, which was worse than useless to any cattle put on to it for feeding purposes. Mr. Pieter's note on its use in Saskatchewan is interesting. When I was last in that Province, August 15, 1911, it was freezing hard, and on my arrival at Banff I had to ride to my hotel through a blinding snowstorm; 40° below zero is a common experience there in winter. Great Britain, happily, is not favoured with such weather conditions. *S. B. Dicks.*

SOCIETIES.

READING AND DISTRICT GARDENERS'.

AT the final meeting of the autumn session in connection with the above Association held at the Abbey Hall, Mr. H. C. Loader, Forbury Gardens, Reading, gave an interesting lecture entitled "A Plea for Individuality in Plant-Life, or a Protest against Overcrowding." He pointed out that the stinted and weakly growths of Sweet Peas, Michaelmas Daisies, Antirrhinums, and other bedding plants sown or planted too closely together, in comparison with the magnificent specimens that are obtained by giving each plant or seedling plenty of room in which to develop itself to its fullest extent. From flowers, the lecturer passed on to vegetables and trees, drawing the same conclusions. He gave instances of the overcrowding of trees in Reading and district, stating that where one specimen would have been sufficient to fill the space, three, and even four, had been planted. A debate followed the lecture, each speaker agreeing with the lecturer that overcrowding was fatal to the well-being of plants and trees.

In the competition for three dishes of culinary Apples, three distinct varieties, there were nine entries, and the awards were made as follow: First, Mr. A W. GOWER, Calcot Grange Gardens; second, Mr. A. G. NICHOLS, Goddards' Farm, Mortimer; third, Mr. F. ALEXANDER, The Gardens, Kennett's Lodge, Theale.

In the non-competitive section, Mr. A. W. GOWER staged a splendid collection of Apples, for which a First Class Certificate was awarded. Mr. W. SAUNDERS, Bear Wood exhibited a basket of Tom Thumb Cabbage Lettuces.

BRITISH MYCOLOGICAL.

AT the November meeting of this Society, Mr. F. T. Brooks presided. The first communication was by the treasurer, Mr. A. A. Pearson, but was concerned with a mycological excursion at Paris with the Société Mycologique de France. The differences between the French method and the British in conducting a foray was commented on and remarks made on the relative frequencies of the run of species.

Mr. W. J. Dowson followed with the description of a new disease of the Sweet Pea (see p. 10). Mr. J. Jackson Clarke then gave a paper and demonstration on some non-cellular or chromidial phases of certain Synchytriaceae and compared them with what he and others had found in the investigation of various animal diseases.

After lunch Mr. R. Paulson recounted some observations made on the mycorrhiza of trees. Fungus-roots occur most frequently two or three inches below the surface of decaying leaves, or if there is no accumulation of leaves, under cushions of Leucobryum glaucum and other Mosses. An examination of a large number of Birch seedlings showed that a high percentage of them had their rootlets associated with fungi within the first few weeks of their existence. These seedlings are apparently healthy and show no signs of malnutrition and grow so much as two feet in length during the first year. Should a prolonged drought destroy the mycorrhiza, after rains rootlets will be again produced on the large branches among the same leaves in which the shrivelled remains of the former crop persist There is no formation of rootlets at a lower level. The new rootlets make an extensive fine-meshed network among the decomposing leaves where fungous hyphae are abundant. Such trees are dependent upon mycorrhiza for all the water they require, the whole root-hair system being practically suppressed. It is probable that in years of drought Hornbeam and Birch, owing to their lowered vitality, are attacked by the fungus Melanconis stilbostoma. An interesting point, but one of which the significance is not yet clear, is that frequently hyphal threads are twisted around the separate styles of the Birch seed even before the seed falls. When the seed germinates the radicle passes through the hyphae and the hypocotyl which is studded with a multitude of minute, hooked processes pointed in the direction of the growing point, follows. Some of the hooks catch the hyphal threads and carry them to the upper surface of the soil: it is possible to find scattered portions of the hyphal threads along the hypocotyl. At the point of juncture of the hypocotyl and the radicle there is an accumulation of the hyphae of many fungi among which are those which have been brought down by the hooked processes. The fungus is a species of Sporotrichum. What part it plays, if any, in the formation of the mycorrhiza of the Birch remains to be investigated. The paper was illustrated by some excellent lantern slides.

Professor E. C. Stakman, of the University of Minnesota, U.S.A., then gave a most interesting talk on the rust problem in America. Dr. A. S. Horne described the characters of a further new species of Eidamia isolated by Mr. G. N. Jones from a diseased Gooseberry bush. This fungus resembles E. acremonioides morphologically, except that its macrospores are tuberculate, but differs from it physiologically in its ability to hydrolyse starch, invert cane sugar and other reactions. The authors had established the identity of Eidamia acremonioides and Monpodium uredopsis, having obtained typical microspore fructifications in certain culture media, using a culture of Monpodium uredopsis obtained from Baarn.

Miss R. Bracher gave a preliminary account of the life history of Rhytisma, dealing with the changes in appearance during the development of the disease from the yellow spot to the thick black sclerotium, and the corresponding changes in internal structure, including infection and the production of pycnidia and apothecia. Infection takes place by means of a germ-tube which grows from the ascospore through a stoma on the under surface of the leaf. The fungus branches and penetrates the cells of the leaf chiefly in the palisade layer, but finally concentrates in the cells of the upper epidermis. Subsequent development of the fungus takes place actually within the cells of the upper epidermis. The cells are consequently killed and the walls ruptured and pushed apart. Black sclerotium formation is first apparent in the thickened outer walls of the upper epidermal cells, and is later increased by the development of a plectenchymatous layer beneath these walls. Splitting of the apothecia is accompanied by the development of a special mechanism whereby the sclerotium is broken down by a secretion of the hyphae in the region of the split.

Most of the papers were followed by discussions.

CARDIFF GARDENERS'.

The fortnightly meeting of the above Association was held on the 11th ult., Mr. H. Wilkins presiding over a gathering of forty-four members.

Mr. H. F. Warren, a representative of the Bristol Gardeners' Association, gave a paper on "The Rose Garden." He dealt in a concise manner with the general cultivation and varieties of Roses. Amongst the points raised in a discussion which followed the reading of the paper, were feeding Roses with liquid manures during the growing season, applications of lime for heavily manured, fatty soils, root-pruning of old Roses, stocks and training of climbing H.T.'s.

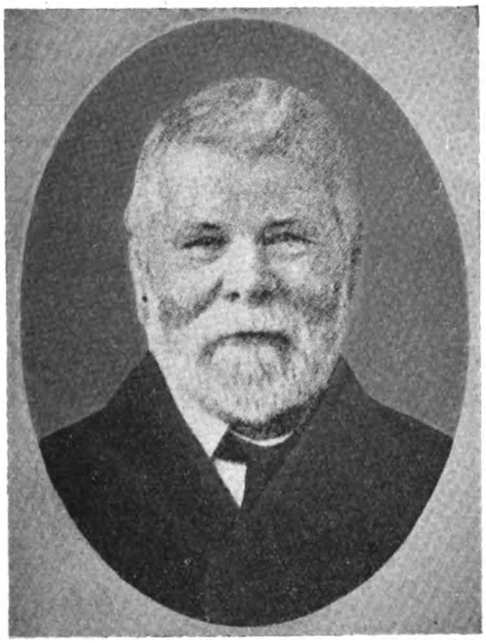
EAST ANGLIAN HORTICULTURAL CLUB.

THE annual meeting of this flourishing club was held at Norwich on December 12. From the thirty-fourth Annual Report we gather that there is a membership of 241, with a reserve cash balance of nearly £100. The monthly meetings, at which lectures, essays, debates and exhibitions are great features, have had large attendances and caused steady educational progress. Reference was made to the success of the club in again securing the challenge cup at the R.H.S. Fruit Show in October last in a competition open to all affiliated Societies.

Mr. J. W. Chapman, The Gardens, Mangreen Hall, was elected president, and Mr. F. J. Endersby, Keswick Hall Gardens, Norwich, acting vice-president; Mr. J. Clayton, hon. treasurer; and Mr. G. R. Todd, 12, Royal Arcade, Norwich, secretary. An interesting series of essays for 1924 was announced.

Obituary.

R. P. Brotherston.—With his recent breezy letter and some articles in manuscript before us, and one article in type for the present issue, we find it very difficult to believe that the writer, Mr. R. P. Brotherston, will write no more. He passed away on Friday, the 21st ult., after a brief illness which took a serious turn on the previous Tuesday morning. About midnight on that day he became unconscious and never rallied. Only a week or two previously he left Tyninghame to stay awhile with his daughter and son-in-law, Mr. and Mrs. Malcolm MacNaughton, at the Palace Gardens, Old Scone, Perth, and it was here that his long, strenuous and useful life came to an end. The funeral took place on Christmas afternoon in the churchyard of White Kirk, overlooking the Firth of Forth, when the whole country-side presented a magnificent spectacle with its covering of snow. For very many years Mr. Brotherston had been a valued contributor to these pages and his contributions have always proved of service and interest to our readers. He had his own view-point on all matters relating to horticulture and was ever ready to maintain it, although in his writings he never assumed that his was the only possible point of view. Although dearly loving a brisk discussion he never spoke roughly or dipped his pen in acid, and it was this kindly consideration for the views and foibles of others that so greatly endeared him to all who knew him and steadily increased the number of his friends. A gardener by nature, by training and by choice, he did all he possibly could to ennoble the profession he so greatly loved. To have the care of a garden, to discuss plants and flowers with plant and garden lovers, and to study old gardening literature were his chief interests, and he could no more help writing of the matters he discovered or discussed than he could do an unkind or mean thing. It was his great ambition to assist in the progress of horticulture by helping others. His was a happy life and he wanted others to be happy in their work, consequently none but the kindest and sweetest of memories will come to the minds of those who enjoyed his friendship and now mourn his loss. Our late friend was a capable gardener and had a wonderful genius for adaptation; this was shown in a remarkable degree during the war period, and his writings have also shown how cleverly he combined efficiency with economy and could "carry on" when circumstances were not propitious. Only so recently as in our issue of September 1, 1923, on the occasion of his retirement from the charge of the gardens at Tyninghame—a charge he had kept for about fifty years—we published a portrait and appreciation of this fine old gardener, and gave an account of his horticultural history, including his search for gardening experience south, as well as north of the Tweed. Therefore it is not necessary to cover the same ground again. We feel sure our readers will greatly miss his contributions on practical matters and on old gardening books; the staff of *The Gardeners' Chronicle* will sadly miss his cheery letters and his valuable assistance; old friends will ever hold him in kindly remembrance; and all who knew him personally or through his writings will join with us in sympathy with the daughter and two sons who have been so sadly and suddenly bereaved.



MR. R. P. BROTHERSTON.

NEW HORTICULTURAL INVENTIONS.

LATEST PATENT APPLICATIONS.

31039.—Herbert, L.—Apparatus for trenching between rows of plants. December 10.

30458.—Cole, H. P.—Rotary turf aerator and cultivator. December 4.

30047.—Illingworth, C.—Fertilizer and insecticide. November 29.

29418.—Stevenson, G. C.—Weed, etc., lifter. November 21.

SPECIFICATIONS PUBLISHED LAST MONTH.

207,702.—Trigues, W.—Device for marking-out tennis lawns applicable to other like operations.

206,957.—Winskill, J. R., Thompson, W. S., and Guy, J. W.—Garden shears.

206,962.—Pugh, Ltd., C. H., and Bull, G. F.—Grass-edge trimmer or cutter.

206,964.—Hamilton, W. B.—Implements for tilling and cultivating.

206,583.—Dunn, W.—Implements for forming ridges, depositing seeds upon the ridges, and covering the seeds.

ABSTRACT PUBLISHED LAST MONTH.

Supports for plants. Patent No. 205,237.—A new plant support has recently been patented by Mr. J. Rae, of 29, Stroans Road, and J. Haig, of 1, Rockview Terrace, both in Dumbarton.

The device consists of a springy piece of wire bent to form a hoop, one end of which is bent and twisted to form a catch, and the other end is bent and twisted to form a loop, the member being passed through the loop so that the ends of the hoop grip the opposite sides of a supporting stake. In a modification, both ends of the hoop are in the form of loops.

This list is specially compiled for the *Gardeners' Chronicle*, by Messrs. Rayner and Co., Registered Patent Agents, of 5, Chancery Lane, London, from whom all information relating to patents, trade marks, and designs may be obtained gratuitously.

Messrs. Rayner and Co. will obtain printed copies of the published specifications and abstract only, and forward them, post free, for the price of 1s. 6d. each.

ANSWERS TO CORRESPONDENTS.

AUTUMN-FLOWERING PLANTS FOR THE CONSERVATORY: *T. S.* The months of September and October are usually a dull period in the conservatory, but towards the middle of October there should be no difficulty in keeping the house gay with early-flowering Chrysanthemums. Salvia splendens var. Glory of Zurich is excellent for the benches, while the larger growing kinds may be used for standing in the beds. An early-sown batch of Primula malacoides should flower during October, while tuberous Begonias raised from seed sown early in the New Year should give a good display during September, followed by Begonia Gloire de Lorraine and B. Turnford Hall during October. Zonal Pelargoniums are also very useful during both months. The conservatory may, however, be kept quite gay with annuals, and those generally used for a spring display may also be employed for the period you require. Some of the most useful are Lobelia tenuior, Statice sinuata and S. Suworowi, Mignonette, Clarkia elegans, of which there are many fine varieties, Godetia Schamini fl. pl., Schizanthus, Acrocliniums and Rhodanthes. Celosia pyramidalis is also very useful in late autumn. All the hardy annuals used for this purpose should be sown about the end of June and grown in cold frames.

CLUB ROOT: *Acorn.* This disease is caused by the fungus Plasmodiophora Brassicae, a very low form of plant life, and is characterised by the production of naked masses of protoplasm within the cells of the host plant.

CUCUMBER CULTIVATION: *T. P. O.* A book which will prove useful to you is *Cucumber Culture*, by W. Dyke. It may be obtained from our Publishing Department, the price, including postage, being 1s. 2d.

GRUBS ATTACKING PRIMULAS AND CYCLAMEN: *P. J. M.* The grubs sent for examination are the larvae of the Clay-coloured Weevil, Otiorhynchus picipes, a pest frequently met with among the roots of Cyclamen and greenhouse Primulas. It is a difficult matter to deal with the pests at this stage, and we suggest you search the soil for the grubs, disturbing the roots as little as possible. The grubs were doubtless present in the potting medium, and in order to free the soil of them it is necessary to partially sterilise your potting compost, especially leaf-mould, either by means of heat or some chemical steriliser, such as formaldehyde.

NAMES OF PLANTS: *W. G.* 1, Solanum aculeatissimum; 2, Eucalyptus globulus.

TRADE NOTE.

THE Ministry of Agriculture and Fisheries has now been informed by the Chief of the Netherlands Phytopathological Service that no permit is required at any time for the importation of dry bulbs, tubers or roots of flowering plants from this country into Holland. During the period 1st June to 31st October in each year, however, each package imported must bear a label indicating the exact nature of the contents, and immediately a consignment is landed the importer must give notice to the Netherlands Authorities, who will then arrange for any examination of the consignment which is considered necessary.

GARDENING APPOINTMENTS.

Mr. George Arnold, previously for three years Gardener to Kenneth O. Hunter, Esq., Bassetts, Mark Cross, as Gardener to Lt.-Col. C. B. A. Hornung, Ivorys, Cowfold, Sussex. (Thanks for 2/- for R.G.O.F. Box.—EDS.)

Mr. E. W. Wakeham, for the past four-and-a-half years Gardener to Miss De Tenac, Bentley Priory, Stanmore, Middlesex, as Gardener to A. Dunhill, Esq., The Old Barn, Harrow Weald, Middlesex. (Thanks for 2/6 for R.G.O.F. Box.—EDS.)

MARKETS.

COVENT GARDEN, Tuesday, January 1, 1924.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz.	10 0–18 0
—elegans	10 0–12 0
Aralia Sieboldii	9 0–10 0
Araucarias, per doz.	30 0–42 0
Asparagus plumosus	12 0–15 0
—Sprengeri	12 0–18 0
Aspidistra, green	48 0–72 0
Asplenium, per doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Cacti, per tray, 12's, 15's	5 0– 7 0
Chrysanthemums	
—white, doz.	12 0–18 0
—pink ,,	12 0–15 0
Crotons, per doz.	30 0–42 0
Cyrtomium	10 0–15 0
Erica gracilis, 48's per doz.	24 0–30 0
— 60', per doz.	12 0–15 0
— hyemalis 48's per doz.,	24 0–30 0
—nivalis, 41's ,,	24 0–30 0
— —60's	12 0–15 0
Nephrolepis, in variety	12 0–18 0
—32's	24 0–36 0
Palms, Kentia	24 0–30 0
—60's	15 0–18 0
—Cocos	24 0–36 0
Pteris, in variety	12 0–21 0
—large 60's	5 0– 6 0
—small	4 0– 4 6
—72's, per tray of 15's	3 6– 4 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	15 0–18 0
—cuneatum, per doz. bun.	9 0–10 0
Asparagus, plumosus, per bun, long trails, 6's	4 0– 5 0
med. sprays	2 6– 3 6
short ,,	1 0– 1 6
—Sprengeri, per bun. long sprays	3 0– 3 6
med. ,,	2 0– 2 6
short ,,	1 0– 1 3
Bouvardia, white, per doz. bun.	9 0–12 0
Camellias, 12's, box	3 6– 4 0
Carnations, per doz. blooms	4 0– 6 0
Chrysanthemum, per doz. blooms	
—white ,,	3 6– 6 0
—yellow ,,	4 0– 8 0
—bronze ,,	4 0– 8 0
—pink ,,	4 0– 8 0
spray, doz. bun.	18 0–27 0
Croton leaves, var., per bun.	2 0– 2 6
Daffodils, single, per bun.	2 0– 2 6
Gardenias, per box	— —
Fern, French, per doz. bun.	1 0– 1 3
Forget-me-not, per doz. bun.	0 0–12 0
Freesia, white, per doz. bun.	5 0– 8 0
Iris, blue, per doz. blooms	6 0– 8 0
Tulips, single white, per doz. bun.	15 0–24 0
—single yellow, per doz. bun.	18 0–24 0
—single red, per doz. bun.	18 0–30 0
—single pink, per per doz. bun.	24 0–30 0
French Flowers—	
—Acacia (Mimosa) per bun.	1 0– 1 6
—Anemones, double pink, per doz. bun.	8 0– 9 0
—Anemones, single mixed, per doz. bun.	18 0–24 0
—Marguerite, yellow, per doz. bun.	3 0– 3 6
—Narcissus Paper White, per doz. bun.	3 6– 4 0
French Flowers—	
—Narcissus Soleil d'Or, per doz. bun.	4 6– 6 0
—Ranunculus carmine, per doz. bun.	8 0– 9 0
—Ranunculus Romano, large red, per doz. bun.	24 0–30 0
—Roses, Safrano, per pkt., 24's	3 6– 4 0
—Violets, single per doz. bun.	3 6– 4 6
—Violets, Parma, per bun.	8 0– 9 0
Heather, white, per doz. bun.	9 0–12 0
Lilac, white, per doz. sprays	6 0– 8 0
Lilium longiflorum long, per doz.	6 6– 7 0
short ,, ,,	7 0– 8 0
—speciosum album, long, per doz. blooms	4 6– 5 6
—short ,, ,,	3 6– 4 6
—rubrum long, per doz. blooms	5 0– 6 0
—short, ,, ,,	3 6– 4 0
Lily of the Valley, per doz. bun.	24 0–36 0
Orchids, per doz.	
—Cattleyas	18 0–24 0
—Cypripediums, per doz. blooms	4 0– 6 0
Pelargonium, per doz. bunch, double scarlet	12 0–15 0
Poinsettias, per doz. blooms	18 0–24 0
Richardias (Arums)—per doz. blooms	8 0–12 0
Roman Hyacinths, per doz. bun., 6's	12 0–15 0
Roses, doz. blooms—	
—Melody	— —
—Ophelia	— —
—Golden Ophelia	10 0–12 0
—Liberty	9 0–12 0
—Mme. Butterfly	— —
—Mme. Abel Chatenay	6 0– 8 0
—Niphetos	— —
—Richmond	0 0–12 0
Smilax, per doz. trails	3 0– 3 6
Violets, doz. bun.	4 0– 7 0

REMARKS.—Supplies have been somewhat limited since the opening of the Market on Thursday last, and Chrysanthemums, in particular, are practically over. Amongst the disbudded blooms the best sorts remaining are Cheshunt White, Dove, Favourite, and Thompson. Coloured varieties are Baldock Crimson, Negoya (Yellow), Winter Cheer and December Pink, Rosalind and December Bronze. Heston-White is the best in spray white, while among coloured spray varieties are Allman's Yellow, Negoya, Framfield Pink, and Winter Cheer. Supplies of Roses are increasing and in good demand. Carnations remain firm but larger supplies are expected in a few days. Daffodils are more plentiful and of better quality and prices are on the down grade. Tulips are also more plentiful and improving in quality, and some good blooms of white, yellow, pink, and red sorts are on sale. There is also a good supply of white and coloured Hyacinths, cut, and on bulbs. Small consignments of Freesia and yellow Narcissus Soliel d'Or are arriving from Guernsey. Arums (Richardias) and Lilium longiflorum are equal to present requirements. L. lancifolium is in shorter supply. There is a good supply of Lily of the Valley. A few blooms of blue Iris are now on sale. There is general shortage of all foliage at the present. Asparagus plumosus, A. Sprengeri and Maidenhair are the chief items, and prices are considerably higher. Smilax is dearer owing to a more limited supply, the main consignment coming from the Channel Islands. In the French flower department good supplies have been maintained. Parma Violets have been the scarcest lines, these advancing to 15s. and 16s. per large bunch, the arrivals at the present time being very uncertain; the ordinary singles are also realising high prices. Scarlet Ranunculus, Marguerites, Anemones, and Roses, no doubt, will remain short for a few days owing to the New Year Festivities in France.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples—	
—Allington Pip.	3 6– 4 0
—Bismarck	8 0–10 0
—Bramley's Seedling, bus.	12 0–14 0
—Newton Wonder	10 6–12 0
—Oregon Newtown	11 0–13 0
—Californian	9 0–10 0
— Jonathan	10 0–12 6
—Russets	24 0–32 0
Nova Scotian—	
—Baldwin	18 0–26 0
—Starks	20 0–25 0
—Fallawater	20 0–25 0
—Greenings	20 0–26 0
Bananas, singles	15 0–25 0
—doubles	16 0–27 6
Dates, Tunis, doz. cartons	4 6– 6 6
Grapes—	
—Alicante	1 6– 2 6
—Almeira, barrel	12 6–22 6
—Belgian	1 6– 2 6
—Gros Colmar	1 6– 4 0
—English Muscat	6 0–12 0
Grape Fruit—	
—Cuban	20 0–22 6
—Jamaica	20 0–22 6
Lemons—	
—Mandarines, box	— —
—Messina, case	27 0–30 0
—Messina, box	10 0–12 6
—Murcia,	14 0–20 0
Nuts—	
—Brazil, cwt.	70 0–90 0
—Italian Chestnuts, bag	18 0–22 0
—Italian Walnuts, bag 50 kilos	55 0 65 0
Oranges—	
—Florida	27 6–28 6
—Mandarines, box	1 2– 5 0
—Jamaica	12 6–14 0
—Spanish 300	15 0–24 0
— — 360	11 0–14 0
— — 504	8 0–14 0
Pears—	
—Winter Nelis	20 0–22 0
Pines, each	1 6– 4 0
South African Plums	4 0– 6 0
—Peaches	6 0–12 0
—Apricots	6 0– 7 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus, forced—	
French	9 0–11 0
English	4 6– 9 0
Batavia	4 0– 4 6
Beans	
Guernsey, lb.	2 6– 5 0
Madeira, Basket	4 0– 6 0
Beets, cwt.	8 0–10 0
Cabbage, doz.	2 0– 2 6
Carrots, cwt.	7 6–10 0
Cauliflower, doz.	2 0– 5 0
Chicory	0 7– 0 9
Celery, fan	2 0– 3 0
Celeriac	3 0– 5 0
Cucumber, doz.	24 0–36 0
Green Artichokes, doz.	3 0– 4 0
Lettuce, French—dozen	2 0– 2 3
Endive, doz.	3 6– 4 0
Mushrooms—	
—Forced, lb.	1 0– 2 6
Mint, doz.	4 0– 6 0
Onions, Valencian, case	11 0–13 0
Onions, English cwt.	10 6–12 6
Parsnips, cwt.	7 0– 8 0
Potatos, King Edward, per ton	150 0–170 0
— Others	110 0–140 0
—Guernsey, lb.	— —
—Forced	0 6– 0 9
Rhubarb, Forced, per doz.	2 6– 3 0
Savoys, doz.	2 0– 3 0
Seakale, punnet	3 0– 3 6
Spinach	5 0– 6 0
Sprouts, bus.	7 0– 8 0
—Bags	6 0– 7 6
Tomatos—	
—English Pink New Crop	6 0– 8 6
—Pink and White New Crop	— —
Others	— —
—Canary Island	15 0–20 0
Turnips, cwt.	4 6– 6 0

REMARKS.—The demand following Christmas has not been particularly keen, as, perhaps, was expected. A comparatively heavy arrival of fruit from the Cape has been on sale this week consisting of Peaches, Plums and Apricots, but only a moderate enquiry has been experienced. Hothouse Grapes, both English and Belgian, have been selling quite well, but, no doubt, the increasing quantities of South African fruit will have some effect on future prices. Large stocks of Apples from North America are on hand and prices are inclined to be easier. English Apples are not plentiful, a few large cookers selling at firm prices. Forced Rhubarb is in steady demand with prices slightly easier. Mushrooms have been slightly more plentiful and selling at lower figures. Forced Asparagus is in moderate demand. French Beans are scarce and firmer in price. Madeira Beans are also quoted higher. New Potatos have been in poor demand since Christmas. A good enquiry has ruled for the few Cucumbers that have come to hand. First quality green vegetables are not plentiful and good Sprouts are selling at firm prices, The Potato trade shows an improving tendency.

CATALOGUES RECEIVED.

Seeds.

UPSTONES, 35, Church Street, Rotherham.
WM. CUTBUSH AND SON, Limited, Barnet, Herts.
STEWART AND CO., 13, South Saint Andrew Street, Edinburgh.
LITTLE AND BALLANTYNE, Carlisle.
E. WEBB AND SONS, Wordsley, Stourbridge.
R. VEITCH AND SON, 54, High Street, Exeter.
HERD, BROS., Penrith.
CARTER PAGE AND CO., LIMITED, 52, London Wall, E.C.
SALE AND SON, Wokingham.
BROWN AND WILSON, 10, Market Place, Manchester.
A. DAWKINS, 408, King's Road, Chelsea.
AUSTIN AND MCASLAN, Glasgow.
BACKHOUSE NURSERIES (York), Limited, York.

GODFREY AND SON, Exmouth, Devon.—Chrysanthemums.

THE
Gardeners' Chronicle

No. 1933.—SATURDAY, JANUARY 12, 1924.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39°.

ACTUAL TEMPERATURE :—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 9, 10 a.m.: Bar, 29.3; temp. 33°. Weather—Wintry.

Trees, Shrubs, and Herbs.

ONE of the recurrent problems which confront the student of evolution is the way of reading Nature's writing; whether, as we should say, forward, as we read our own, from left to right; or backward from, right to left, as do the Chinese. Thus on the earth to-day trees and shrubs and herbs flourish aboundingly; yet which is the older form of vegetation is still a subject of conjecture. It might seem natural to suppose that in order of time the fugaceous herbs came first and that from them arose the larger forms, the shrubs and trees. But when all the evidence is reviewed—geological, anatomical and phytogeographical, this reading of the course of evolution becomes more and more doubtful; and it would seem more probable that, as geology hints, the ancient floras of the world consisted mainly of woody plants from which in comparatively recent times herbs have originated. In support of this conjecture it has been pointed out that fossil-flowering plants are almost all woody, albeit that it is easy to imagine the lesser likelihood of soft-tissued plants surviving in the rocks. Again, herbs are most numerous in those plant groups which may on other grounds be regarded as of recent origin. Thus the Compositae, that most flourishing of families, consists almost entirely of herbaceous plants. For these and similar reasons the suggestion has been put forward that the herbaceous vegetation of the earth at the present times represents an evolution by reduction. The ancestors of that vegetation were trees and shrubs with solid rings of wood in their persistent stems. From them, owing to cosmic changes of climate, the suffrutescent and the herbaceous perennial habit have been evolved, and ultimately the herbaceous habit. On this view the change from tree or shrub may be likened to our retreat under cover in bad weather. The persistent parts of plants faced with seasonal vicissitudes could no longer build aerial stems but were perforce obliged to develop their perennial parts beneath the surface of the ground. Like cave dwellers they have taken refuge in the earth only to emerge when the summer comes back again. As the north temperate zone became colder so herbaceous vegetation came more and more to replace the tree and shrub. From this region the herbs have spread until they occupy much of the earth. Only in very isolated regions does the endemic flora, surviving because of its isolation, reveal the primitive tree vegetation which once flourished over the face of a warmer earth. The true herbaceous plant which fits its life into the congenial season of the year and ends it with a crop of seeds when that season finishes is, in this view, the last term of this descending series. In the great underground root stocks of such plants as the Bryony and many another may be seen, as it were, the survival of the tree trunk. Recently Mr. Joseph Burtt Davy has tested this hypothesis with reference to the forms of vegetation on the high veld of South Africa.* He points out that there are in South Africa plants which, though they belong to genera characterised by tree or shrub habit, exist there in suffrutescent or even herbaceous habit. For instance, there is an herbaceous species of Eugenia—a Myrtaceous genus of some seven hundred species, all, or most of which, are trees or shrubs. From the open veld trees are absent and are only met with on the kopjes. Nor is this surprising when it is remembered how wind-swept is the veld and how periodic is the rainfall. Cold and wind and drought make it hard for seedling trees to establish themselves, as farmers in the high veld have often discovered. Yet though sub-tropical trees are absent there are many plants in the high veld which, belonging to arborescent genera, are suffruticose or even perennial herbs. Examples cited by Mr. Davy include species of Acacia, Clerodendron, Erythrina, Eugenia, Myrica and Zizyphus; and it is suggested that these plants form an intermediate stage in the evolution of a type of vegetation better adapted than is the tree or shrub type to withstand the severity of environmental conditions. The suffruticose habit has become fixed, and even when these plants are grown under more favourable conditions it remains, at all events, for several years. To refer in more detail to the facts brought forward by Mr. Davy, Eugenia pusilla (*Kew Bulletin*, 1912, p. 276), a native of South Africa and, as noted, allied with trees and shrubs, is a perennial herb four to six inches in height which throws up slender, annual stems. Not till its flowers are examined may it be referred to its genus. E. albanensis has gone less far and remains a low-branched dwarf shrub a half to one foot high and found in Eastern Cape Province. Erythrina Zeyheri (Leguminosae) is a remarkable herbaceous plant. Its abnormally large leaves and spikes of flowers appear as though the leafy, flowering end of a tree branch had been cut off and stuck in the ground. The leaves and flowers are borne on short, stout annual shoots two to four inches long, arising from the crown of a large, subterranean, corky stem, hence the popular name of Cork Root. Acacia stolenifera, which occurs in South Bechuanaland, has underground stolons which throw up a thicket of short, erect stems three feet in height, like a mass of suckers thrown up after the main trunk of a tree has been felled. On Mr. Davy's hypothesis this is, indeed, what it is! The descriptions and the illustrations which accompany the text are remarkable, and undoubtedly serve to give cogency to Mr. Davy's contention that the suffruticose habit of these South African plants represents adaptation to environment and constitutes an intermediate stage in the "descent" of arborescent to herbaceous vegetation.

National Rose Society.—The forty-seventh Annual General Meeting of the National Rose Society will be held at Caxton Hall, Victoria Street, Westminster (nearest station, St. James's Park), on Tuesday, January 15, at 2.30 p.m.

Honour for the Assistant Forestry Commissioner.—The New Year's honours includes a knighthood to Hugh Murray, C.I.E., C.B.E., J.P., Assistant Forestry Commissioner of England and Wales, to whom we offer congratulations.

Kew Gardeners' Social Meeting.—The Secretary, Mr. T. W. Taylor, informs us that the members of the Kew Social Club will hold their annual social evening on Friday, the 18th inst., in the Kew Pavilion, Kew Green, commencing at 7 p.m. The price of the tickets is 3s. 6d., and includes the cost of refreshments.

Mr. Reginald Hayes.—We offer our congratulations to Mr. Reginald Hayes who has recently obtained the B.Sc. degree at the Manchester University, for research work. Mr. R. Hayes, son of Mr. T. R. Hayes, the well-known rock-garden expert, of Keswick, is only twenty-one years of age.

Australian Orchid Club.—Orchid enthusiasts in Victoria, Australia, have recently formed themselves into the Victorian Orchid Club, which is the first society formed in Australia for the promotion of the culture of Orchids. The following officers have been elected:—President: E. P. Johnson, Esq., Caulfield; Vice-President: E. E. Prescott, Esq., Dept. of Agriculture, Melbourne; Treasurer: J. B. Cameron, Esq., 430, Bourke Street, Melbourne; and Secretary: D. J. W. Chandler, Esq., Tooronga Road, East Malvern.

Trials at Wisley in 1924.—The Royal Horticultural Society will carry out trials of the following annual flowers and vegetables during 1924. Varieties for trial should reach The Director, R.H.S. Gardens, Wisley, Ripley, Surrey, on or before January 31, 1924. Annual Scabious, one packet of each variety. Sweet Peas (excluding blue, lavender, lilac, mauve, purple, rose, salmon, carmine, cerise, all pink shades, orange and scarlet, bicolor, picotee, flushed and flaked varieties), 50 seeds of each variety; Dwarf Beans, a quarter pint of each variety; Endives, one packet of each variety; Cos Lettuces, one packet of each variety: and early Potatos, forty-eight tubers of each variety.

Afforestation Scheme at Georgetown.—The area of land recently occupied by the Georgetown Shell Filling Factory, situated at Houston, Renfrewshire, and comprising about 513 acres, is to be utilised for a re-afforestation scheme, undertaken by Mr. A. A. Hagart Spiers, of Elderslie and Houston, Renfrewshire. Ex-service men are being employed to clear the land and it is hoped that one hundred acres at least will be planted during the spring of this year.

Horticultural Directory for 1924.—This directory has just been issued for the current year. Every effort has been made to bring this publication thoroughly up to date, and like its forerunners it will doubtless prove indispensable to many thousands of people engaged in the horticultural profession. A list of the most important gardens in Great Britain and Ireland, including names of proprietor, gardener, and post town is alphabetically arranged under county headings, and the names of gardeners are also given in a separate list. The names and addresses of the principal nurserymen, seedsmen, florists and horticultural sundriesmen are included, together with a list of names and addresses of the secretaries of horticultural societies. The parks, gardens and open spaces within the London area and in the provinces are indicated and the date of acquisition is given, with enumeration of the acreage, The price of the Directory is 4s. 0d. post free, and copies may be obtained from the Publishing Dept., Gardeners' Chronicle, Ltd., 5, Tavistock Street, Covent Garden, W.C. 2.

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* The Suffrutescent Habit as an adaptation to Environment. *Journal of Ecology.* No. x, 2, 1922.

Register of Growers of Certified Immune Potatos in 1923.—During the season of 1923 the inspectors of the Ministry of Agriculture examined many fields of growing Potatos of varieties immune to Wart Disease, with a view to certification of the crops under the Wart Disease of Potatos Order of 1923 as true to type and free from rogues. A list of the growers of these certified stocks has been prepared and copies may be obtained, price 1/-, from the Ministry, which will also supply, on application, the name and addresses of growers of certified stocks of any particular variety, together with the numbers of the relative certificates. Growers are reminded that only seed sets from crops which have been so certified may be planted on land infected with Wart Disease.

Crop Statistics for 1923.—The *Report* on the Acreage under Crops and Number of Live Stock in England and Wales, recently issued by the Ministry of Agriculture and Fisheries, contains the final figures of the area on agricultural holdings of over one acre in England and Wales, as ascertained on July 4, 1923. Every effort has been made to make the returns as complete as possible, and although there are a few growers who consider that statistic information is of no value and who refuse to furnish returns, their number is now so few that in such cases it has been possible to make an approximate estimate which is sufficiently accurate to avoid impairing the reliability of the statistics. The acreage of Wheat in 1923 was 1,740,000 acres—practically the same as the average of the ten years immediately preceding the war—but there has been a fairly heavy decline in the Wheat area of some 227,000 acres as compared with the returns for 1922. The total area under Potatos was considerably reduced, and this reduction was common throughout the country, and doubtless due to the ruinous prices realised in 1922. The total area was decreased by 95,000 acres, or nearly 17 per cent., to 467,000 acres. The total acreage of orchards is returned at 232,000, of which 30,000 acres were returned as having small fruit beneath the trees. Out of a total number of 21,638,000 trees, Apples accounted for 14,052,000 trees; Plums (including Greengages and Damsons), 4,642,000 trees; Pears, 1,757,000 trees; and Cherries, 767,000 trees. Other kinds of orchard trees, including Walnuts, Cobnuts, etc., are returned at 420,000 trees. Under the heading of "Small Fruit" the acreage, including that in orchards, is returned at 63,700 acres, and the reduction of 11,000 acres on the acreage returned as small fruit in 1922 is accounted for by the decrease in the area returned as "other kinds" of small fruit Strawberries occupied 2[illegible],000 acres in 1923, showing an increase of 4,500 acres over the acreage in 1922, and Raspberries were increased by 690 acres to [illegible],850 acres. The area under Currants and Gooseberries is returned at 23,600 acres Low prices for most vegetable produce in 1922 offered no inducement for growers to increase the acreages of such crops as Carrots, Onions and culinary Cabbage. The Carrot area was reduced in 1923 by 4,000 acres, Cabbage by 6,000 acres, and Onions by 1,200 acres The cultivation of Brussels Sprouts and Cauliflowers, on the contrary, have shown a marked advance in 1923, and Celery was grown to a slightly greater extent than in 1922. Copies of the publication are obtainable at H.M. Stationery Office, Imperial House, Kingsway, W.C. 2; the price is 1s. 0d. net, postage extra.

Dr. William Botting Hemsley.—Dr. Hemsley is a well-known personality not only in the botanical, but also the horticultural world, and on the occasion of the celebration of his eightieth birthday we take the opportunity of publishing his portrait and a few particulars of his useful life. The portrait we publish shows Dr. Hemsley at an age when most of those who read these notes will remember him best, for he has lived in retirement for several years at Broadstairs, and his great age and indifferent health have prevented him from visiting the London exhibitions and meetings to renew his old acquaintances. Gardeners are proud of the fact that this distinguished savant rose from a young garden boy at Kew to one of the highest positions in these Botanical Gardens—that of Keeper of the Herbarium. He was only sixteen years old when he entered Kew, but he soon showed great ability, and three years later won a prize for botany at the Society of Arts. He was soon transferred to the herbarium in a temporary capacity and his keenness attracted the notice of Mr. Bentham, with a result that he was appointed herbarium clerk. Dr. Hemsley soon made good, but unfortunately he experienced ill-health and in 1867 he was compelled to abandon his post. He did not remain idle, however, for in 1873 he produced his *Handbook of Hardy Trees, Shrubs and Herbaceous Plants*, and, happily, his health recovered, enabling him to become temporarily attached to the Rothamsted Experimental Station. Later he was well enough to return to Kew and he soon became engaged in important work, amongst which was that of working out the botanical collections of the Challenger Expedition. This was not an easy task, for no botanist was attached to this expedition and the material was, mostly, scrappy representatives of the vegetation of the countries at which the ship touched. Much space would be required to relate all his contributions to science, and it must suffice to state that he was responsible for the compilation of the *Index Florae Sinensis*, and he assisted largely in the preparation of the *Index Kewensis*, the second supplement of which he prepared. Dr. Hemsley had much of the material of Mr. E. H. Wilson and other explorers in China through his hands, and no one was more fitted to place them in their proper relationship, owing to his extensive knowledge of the Chinese flora. Many of these new Chinese plants were first named and described by him in the *Gardeners' Chronicle*. Amongst his accomplishments are a knowledge of German and French; the former language he taught himself by the help of a colleague. All who know Dr. Hemsley will offer him hearty congratulations on attaining his eightieth birthday and wish him many more years of happiness. We conclude our short notice of this distinguished gardener and botanist with an extract from a note written by his former chief, Sir William Thiselton Dyer: "In the most unassuming way, but with unwearying industry and courage, he attained scientific distinction, and, within the limits of his science, a reputation which is cosmopolitan."

DR. W. BOTTING HEMSLEY.

Royal Horticultural Society's Journal, Vol. 48. The Secretary of the Royal Horticultural Society will be very grateful to any of our readers who would be kind enough to send him any surplus copies of Part 1 of Volume 48 of the Royal Horticultural Society's *Journal*, dated January, 1923. The stock of this Journal has been entirely exhausted and the Society is unable to send copies to Fellows who have lost their own and who have written asking if fresh ones could be spared.

Horticultural Bank.—A banking company is being formed, under the title of the German Horticultural and Trading Bank Co., by a number of German Societies, catering for trade growers, market gardeners, etc. The head office of the bank will probably be in Berlin. The venture will be looked upon in this and other countries with a good deal of interest, as the subject of agricultural banks has been mooted several times at home.

The Propagation of Haemanthus hirsutus.—A short note on "The Vegetative Propagation of Haemanthus hirsutus, Baker" appears in *The Transactions and Proceedings of The Botanical Society of Edinburgh*, Vol. xxviii., Part iv. The authors, Messrs. R. J. D. Graham and L. B. Stewart, state that this South African species will readily form adventitious buds if the detached scale leaves are placed on sand and given greenhouse conditions with an intermediate temperature. From January to March is regarded as the best time for the operation, although scale leaves placed on sand in April will remain fresh until the following January, when bud formation develops in a pronounced manner. The buds form on the abaxial side of the scale and always occur on the younger portion of the scale towards the base, where buds are produced singly or in colonies of four and five. By utilising the artificially produced buds for propagation, early maturity is secured, year-old plants making as much growth as four-year-old plants raised from seed.

Gardeners' Royal Benevolent Institution.—A Special General Meeting of the members of this Institution will be held at "Simpson's," 101, Strand, London, on Thursday, January 24th, 1924, at 2.15 o'clock, when the following resolution to amend the rules will be proposed:—"That Rule 111 Sub-Section 2 be amended as follows:—"(a) In lines 7 and 8 delete the words 'for thirty years.'" "(b) In lines 8 and 9 delete the words 'who have served as such the same number of years.'" "(c) In lines 10 and 11 delete the words 'for thirty years.'" "(d) In line 12 delete the words 'thirty years.'" "(e) Add at the end of line 12 the following words:—"In all cases the Committee shall decide as to the suitability of candidates for election and their decision shall be final and conclusive." The eighty-fourth annual general meeting of the members and subscribers will follow at 3 p.m., for the purpose of receiving the Report of the Committee and the Accounts of the Institution (as audited) for the year 1923; electing officers for the year 1924; and for the election of fifteen annuitants on the funds. The Chair will be taken by Leonard Sutton, Esq., J.P., C.B.E., Chairman of Committee, at three o'clock. The poll will be open at three p.m. and close at four p.m.

Alpine Flowers of Western Canada.—A special lecture has been arranged to be given in the Royal Horticultural Society's Hall, Vincent Square, at 4 p.m., on the occasion of the next fortnightly meeting, January 15, by Mrs. Henshaw, on "The Alpine Flowers of Western Canada." The lecture will be illustrated by means of hand-coloured lantern slides. As the announcement of the lecture is not included in the Society's *Book of Arrangements*, we have pleasure in making it now.

Oxford Botanic Gardens.—A very interesting series of Christmas lectures for the children of Oxford has been arranged by the educational authorities of that City, and the first address was delivered by Mr. G. Claridge Druce, who took for his subject "The Oxford Botanic Garden: Three Centuries of its History." The lecturer dealt with the foundation of the gardens by Henry Danvers, Baron Danby of Overbury Park, who in 1620, determined to found a Physic Garden at Oxford, and he made the necessary purchase of the land on which the gardens now stand. Before his death in 1648, Danby appointed Jacob Bobart as chief gardener, and in 1669 Robert Morison was made Professor of Botany at Oxford. Morison met with an unfortunate death in 1682 and was succeeded by Jacob Bobart, the younger. William Sherard, a member of St. John's College, who died in 1728, left a fund of £3,000 to endow a chair of Botany, and in 1734 Dillenius was appointed the first Sherardian Professor.

Appointments for the Ensuing Week.—Monday, January 14.—Bath Gardeners' Society's meeting; United Horticultural Benefit and Provident Society's meeting. Tuesday, January 15.—Royal Horticultural Society's Committees meet; Croydon and District Horticultural Society's meeting. Friday, January 18.—Manchester and North of England Orchid Society's meeting.

"Gardener's Chronicle" Seventy-five Years Ago.—*Botanic and Experimental Gardens, Edinburgh.*—The appointment of Mr. James M'Nab, of the Caledonian Horticultural Society, to succeed his lamented father as Curator of the Royal Botanic Garden, reflects the highest credit on those who have conferred it—we hail it with feelings of unmingled satisfaction. On his father's death all eyes were turned on him, not merely as the legitimate, but as the best and highest qualified successor; for, to an extensive acquaintance with our native as well as exotic flora, Mr. M'Nab possesses all that love and enthusiasm for plants which does not rest satisfied with any trite medium, or allow any limit to investigation where labour and research may push it to the discovery of remoter truth, having the courage to resist the fairest theory tested by the strict appliances of practice. Mr. M'Nab is already favourably known to the botanical world by many able essays and valuable contributions of specimens to the Botanical Society of Edinburgh, in which he has held office for years. While we congratulate Professor Balfour and the public on so judicious a choice, we cannot but lament the loss which another valuable institution will sustain by Mr. M'Nab's appointment. By his untiring energy and judicious management, Mr. M'Nab has greatly promoted the interests and advanced the position of the Caledonian Horticultural Society, of which he has been manager for twelve years. When he entered on office, in 1836, there were but three small hothouses in the Society's garden, viz., a vinery, greenhouse, and stove. In addition to these, the Society has now a hall, a Camellia house, two conservatories, a propagating house, and the splendid erection just finished as a winter garden. How much the Society is indebted to Mr. M'Nab in successively devising these erections and voluntarily undertaking to raise the necessary funds by subscriptions, is well known to every member of that numerous body.—*Edinburgh Evening Courant. Gard. Chron., January* 13, 1849.

ROSES AND DAHLIAS IN THE ADELAIDE BOTANIC GARDEN.

THE climate of Adelaide is admirably adapted for the cultivation of the Queen of Flowers and the weather during the end of 1923 was ideal for the production of good quality blooms. There is a splendid collection of Roses in this garden, and thinking they may interest you I am sending photographs of the Rose garden (Fig. 6). Sixteen beds are planted, each with one variety, and the Roses are changed from time to time. Those at present represented are Frau Karl Druschki, Mad. Abel Chatenay, General McArthur, Hadley, Mad. E. Herriot, Ecarlate, Dean Hole, Golden Emblem, Corallina, Viscountess Folkestone, Killarney, Los Angeles, Columbia, Lady Roberts, Lady Hillingdon, and Mad. Melanie Soupert. The area is divided into four sections and bordering each are forty tripods on which many of the well-known ramblers are growing, as well as climbing varieties of Richmond, George Dickson, Mad. Jules Grolez, Mrs. Aaron Ward, Chateau de Clos Vougeot, Mad. Segond Weber, Sunburst, Lady Hillingdon, Maman Cochet and others. The following creations of Australia's leading rosarian, Mr. Alister Clark, of Glenara, Victoria, are included: Blackboy, of a deep velvety crimson, shaded blackish maroon; Kitty Kinonmonth, semi-double, blooms of a bright carmine-rose colour; and Jessie Clark, with single blooms of a bright pink colour.

We also make a feature of Dahlias, the popularity of which has increased considerably during the past few years. Local growers keep in touch with the noted raisers of Great Britain and quite a number of excellent Cactus, Paeony and Decorative varieties have been raised in Australia, and the photograph (Fig. 7) shows a variety of the last named type used with good effect for bedding. During the Autumn we have displays of the leading varieties arranged in their various classes.

Visitors from overseas interested in Araucarias are greatly impressed with the fine specimens of Araucaria Cunninghamii, and A. Bidwillii growing in the garden.

A new feature is a rock garden which has recently taken the place of a grassy bank with formal slate steps leading up to the Palm House. *J. F. Bailey, Director, Botanic Garden, Adelaide.*

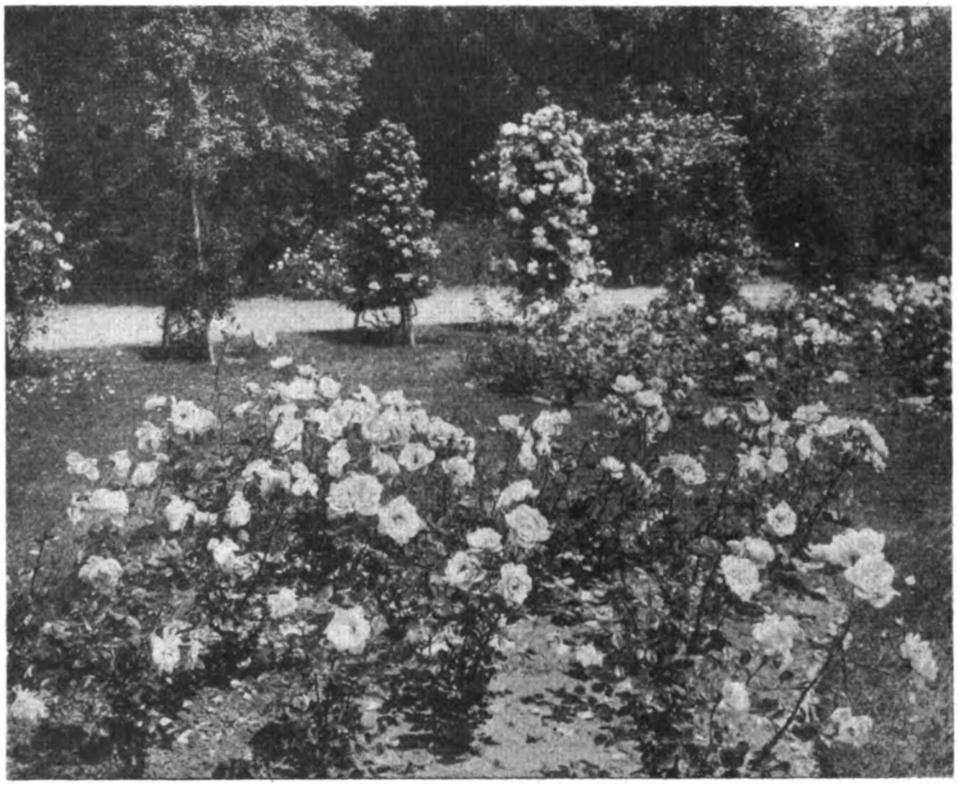

FIG. 6.—ROSES IN THE ADELAIDE BOTANIC GARDEN.

THE ROSE GARDEN.

ROSE FANNY OPPENHEIMER.

WE beg to contradict the statement of Mr. Taylor on p. 370, Vol. lxxiv, that the habit of this Rose is not good; it has the finest bedding habit it is possible for a Rose to possess. It is free flowering, absolutely distinct from any other Rose, has mildew-proof foliage, and is a fine, free grower. It has been growing for the past two years in our nursery, and is most beautiful, and distinct from any other Rose. The colour is on the same lines as in the variety Captain Ronald Clerk, but the growth and size of flower are quite distinct. Judging from the large number of enquiries we have had from nurserymen and wholesale growers, who have seen the Rose, as to when it would be on the market, it does not seem as if these men, whom we consider judges, are of the same opinion as Mr. Taylor. Two gentlemen, whose opinion we value more than those of any other Rose growers, informed us on seeing the variety growing in our nursery, that it was the most beautiful Rose they had ever seen. *Saml. McGredy & Son, Royal Nurseries, Portadown, Ireland.*

TWO NEW AMERICAN ROSES.

SILVER COLUMBIA and Lady Eleanore are the names of two new Roses recently passed by the Registration Committee of the American Rose Society. The former is classed as a Hybrid Tea and is a sport from Columbia, a variety which is gaining favour in this country as a market flower. It is said to be superior to the parent, the flowers being more freely produced, of better form, larger, and of a striking, silver-pink colour. Lady Eleanore is a Climbing Tea of unknown parentage; in habit and foliage it resembles the well-known Gloire de Dijon. The colour of the bud is light, creamy-yellow, splashed with rose, and this deepens to golden-yellow, tinged with bronze, as the flowers open.

The Week's Work.

THE ORCHID HOUSE.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

Ventilation.—Ventilation is essential on all favourable occasions, but discrimination must be exercised in the admission of air so that no plant is exposed to cold draughts. Endeavour to maintain the temperature as evenly as possible at this period so that the plants which are inactive may not be unduly started into premature growth. Air should be admitted through the ventilators below the stage in order that it may become warmed somewhat by passing over the pipes. The ventilators on the leeward side should be opened first, and, as the temperatures in the houses rise, those on the windward side may be opened a little to cause the air to circulate among the plants.

Watering.—The application of water to the roots at this particular season needs very careful attention. When water is needed select, if possible, a bright morning for the work. Plants at rest should be given only sufficient moisture to prevent shrivelling, whilst those that are growing actively should be allowed to become dry at the roots between each application of water. By the end of the present month the washing and cleansing of the houses should be completed, and before replacing the plants in their respective positions each one should be sponged with a suitable nicotine insecticide, taking care to dislodge any scale insects that may be present on the leaves or rhizomes. This overhauling of the plants will afford a favourable opportunity to determine any that may need repotting. It will probably be found that very few will need repotting now, but where a plant is at a suitable stage for the operation it may be done at any time, provided careful watering is practised until fresh root action commences.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Figs.—Trees that are planted out in borders may be started into growth for an early crop. These will form a succession to those that are being forced in pots. The temperature should not exceed 50° at night, with an increase of 5° to 10° by day. The day temperature of 55° is only given as a guide during dull weather. With the sun's heat it may, with advantage, exceed this amount, although I do not advise hard forcing of the Fig. Damp the trees over with tepid water. It is far better to allow growth to develop slowly in the early stages of forcing, for by so doing far finer fruit is assured, and there will be less risk of the trees casting their fruits. In mild weather ventilate the house freely, but guard against cold draughts reaching the trees. As growth increases, syringe less overhead, for the Fig does not like a steamy atmosphere when in full growth.

Strawberries.— Strawberry plants that have been prepared for forcing may be placed under glass. By starting these plants into growth now far better results will be obtained than with those that were placed under glass during December. I generally prepare a double quantity of plants, one batch being started into growth with the early vines, while the others are placed on shelves in the early Peach house, the vines requiring a slightly higher temperature than Peaches. The fruit will ripen quite ten days earlier in the vinery, the others forming a succession. Before placing the plants on shelves examine the drainage to see that it is perfect. As a preventive of mildew, dip the plants in a prepared mildew wash, and again before flowering takes place. The plants should be held head downwards, sufficiently low to ensure the specific reaching the underside of the foliage. Until growth commences extra care is needed in watering, but when growth is well advanced the plants should never be allowed to become dry until such time as the fruit is ripening.

THE FLOWER GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Lawns.—However well flower beds and shrubberies may be kept and successful as the planter may be with colour schemes and floral displays, the final enjoyment of the beauty of the garden depends largely on the ornamental standard of the lawns surrounding them. It is not always easy to maintain these in good condition and it certainly cannot be done without cultivation and feeding. Lawns, generally, do not get sufficient surface cultivation for their needs. This is not always the fault of the gardener as the processes entail considerable labour and he is sometimes not able to cope with it. Nevertheless, with modern implements and machinery much may be accomplished with a minimum of labour, and at the present time, when the bulk of planting is finished, full use should be made of available labour for the surface cultivation and top-dressing of lawns in periods of open weather. Wherever moss exists it should be removed either by hand-raking or a mechanical cultivator, and the whole surface of the lawn vigorously scarified. When the surface has been thoroughly loosened a top-dressing of rich compost may be applied. To those who have acquired the habit of stacking and decomposing waste vegetable matter under controlled conditions, the supply of material for this will create no difficulties, as heaps stacked a year ago will now readily break down to a state of fine division. To facilitate uniformity of application this material may be passed through a screen, and if fowl manure, which has been stored dry and can be broken up into a fine powder, is available, it may be mixed with the compost at the rate of half-a-bushel to a load. Failing this the compost may be enriched by the addition of any artificial manure, but where Clover is not wanted highly phosphatic manures should not be used. When enriching a compost with artificial manure it is always wise to allow the mixed material to remain in the heap for a few weeks before using it. After appplication the surface of the lawn should be brushed several times in all directions with the whale-bone brush, and this operation should be repeated at frequent intervals until just before mowing is done, when the turf should receive a good rolling.

PLANTS UNDER GLASS.

By F. J. CLARK, Gardener to Lt.-Col. Sir GEORGE HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Perpetual-flowering Carnations.—Whilst some growers favour autumn propagation of their stocks of perpetual-flowering Carnations, others prefer to strike their cuttings in the early months of the year, and unless it has been possible to obtain cuttings from tested stock in the autumn it is better, in my opinion, to defer the main propagation until January, when there should be a better choice of cuttings to select from. A method which I have found very satisfactory is to procure some Strawberry saucers of six inches and seven inches diameter, fill them with sifted yellow sand to which has been added a fifth part of finely-sifted yellow loam, or, if one is living near the sea, with sifted sea-sand, in which the cuttings will root readily. Press the sand firmly and apply sufficient water to set the material, with a fine-rosed can. Procure sturdy side growths, two to three inches long, selected from near the base of the flowering stems, detaching them from the plant by a sharp downward pull. They need not be cut across at the base, but should be inserted in the sand with the slight "tongue" which, by the method of detachment advised, comes away with the growth. The cuttings may be dibbled into the saucers quite closely, say three-quarters of an inch apart, and after receiving a slight watering to settle the sand about them, the saucers containing them should be placed in a propagating frame in a light position in a house having a temperature of about 60°. Spray the cuttings lightly daily and shade them with tissue paper on sunny days to prevent flagging. It will scarcely be necessary to water the sand more than once or twice before the roots develop, which should be in three or four weeks. After gradually exposing the young stock to the air of the house, the saucers should be placed on a shelf near the roof-glass for a week or so, when the plants should be ready for potting singly into thumb pots, and be accommodated in the same house for a time, or in a house having a similar temperature. As a precaution against over-watering and to guard against the sand becoming sour it is well to punch a small drainage hole in the bottom of each saucer before filling it. Carnations, until they become established in their flowering pots, should not be allowed to become pot-bound, therefore each succeeding shift up to the final potting should take place well in advance of that stage.

Flowering Bulbs.—Examine bulbs in pots and boxes which still remain in the plunging material. Those which have made sufficient roots and top-growth should be placed in a cold frame. Keep the light covered with mats for a day or two, after which the plants should be gradually brought into the light. Continue to place batches of Hyacinths, Tulips, Narcissi, &c., according to the demands of the establishment, into gentle warmth, remembering that the forcing of plants can only be accomplished successfully when the operator appreciates before hand the conditions under which the various plants to be treated will thrive and flower naturally.

HARDY FRUIT GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Morello Cherries.—These differ from Sweet Cherries in that they fruit on the previous year's wood instead of on spurs, therefore they require somewhat different treatment as regards pruning, etc. Where the trees have made much growth, the shoots should be well thinned, taking out all strong breast wood and reducing the other shoots so that when tied in they are from four to six inches apart. Retain as much young wood as possible near the base of the tree and the main stems. Where the shoots cannot be tied they should be nailed to the wall. Medicated shreds are the best material to use, as cloth shreds are apt to harbour insects. As these Cherries are usually planted on north walls, the main stems are apt to become green and mossy. This foreign growth should be scrubbed off, using soft soap dissolved in warm water. Take care not to injure the bark with the brush. When the work of pruning and training is finished, rake and lightly fork the surface soil after applying a top-dressing of old mortar rubble.

Apricots.—These are usually the first fruit trees to bloom, and they may now be attended to. If they were summer pruned, they will not require much attention in this respect, just shortening any wood that was overlooked, and removing the tips from shoots that are required for extension. Apricots should be very lightly pruned, as the use of the knife is a frequent cause of the trees gumming, which is also caused by the ties becoming too tight, therefore examine the old ties, and loosen any that need it. The branches of Apricots often die from no apparent reason, hence the necessity of reserving as much young wood as possible to fill up gaps caused thereby. The borders may be treated in the same manner as advised for Morello Cherries, taking care not to damage the roots growing near the surface. A little bone-meal applied to the roots of each tree will be beneficial. As these trees are usually planted on south or west walls in order that they may receive the maximum amount of sunshine, the roots are very liable to become dry, especially those close to the wall. If this is found to be the case, soak the border with water when the weather is mild, and mulch them lightly with half-rotted manure. This will help the trees to plump up their buds, the flowers will thus be stronger, and better able to resist cold winds of spring.

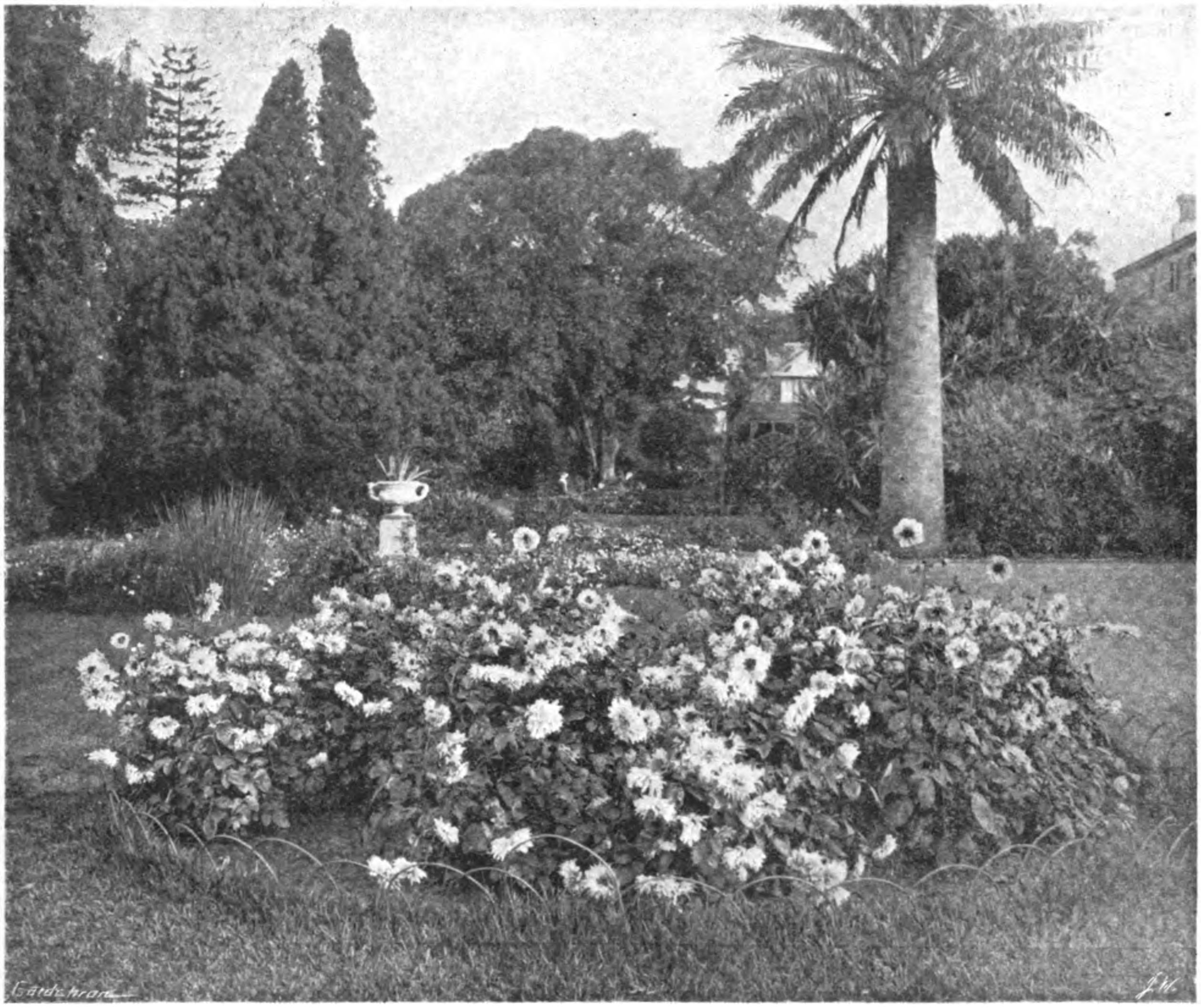

FIG. 7.—DAHLIAS IN THE ADELAIDE BOTANIC GARDENS; WITH JUBAEA SPECTABILIS IN THE BACKGROUND. (SEE P. 17).

THE KITCHEN GARDEN.

By WALTER Y. STAWARD, Gardener to Mrs. JOHN FEENEY, The Moat, Berkswell, Warwickshire.

Potatos.—Where early Potatos are in demand the plants may be forced in 10-inch pots. Place clean crocks in the bottom of the pots, and over the pot sherds put some of the rougher portions of the potting material. Half fill the pot with loamy soil of medium quality and place two tubers in each pot, watering the soil very carefully until plenty of roots have formed. When the tubers are well advanced the plants should be top dressed with rich soil. It is not advisable to unduly force the plants in a high temperature; 50° to 55° is sufficient in the early stages.

Rhubarb.—Strong clumps of Rhubarb may be lifted for forcing. Pack plenty of tree leaves about the roots and damp them overhead both morning and evening. Where Rhubarb is to be re-planted, this should be done forthwith. After planting the roots mulch them with short, rotted manure. In summer, when plenty of short grass is available, a good mulching of this material will be beneficial in keeping the roots moist. Rhubarb seed may be sown about the end of the present month, when the seedlings are large enough for handling, they should be pricked off into 3-inch pots containing good, loamy soil and grown in a cool frame. When they are large enough the seedlings may be used for the making of fresh beds.

Asparagus.—In making new beds of Asparagus mark out each bed 4½ to 5 feet wide, leaving 16 inches between each bed for an alley. Remove the soil to a depth of 12 to 16 inches and well stir the bottom of the trench with a fork. Afterwards fill the trench with well-rotted manure and on the dung place a layer of soil in which to plant the Asparagus. Three-year-old crowns give the best results. Place one row down the centre of the bed and one on either side, a foot apart. Old beds that have existed for several years and have blanks in them should be discarded. The strongest of the roots should be placed in the forcing house, covering them with plenty of fermenting leaves and keeping the house fairly moist.

INDOOR PLANTS.

MID-WINTER IN THE STOVE.

ALTHOUGH the garden is comparatively sombre, Roses are not quite over here. Eugenia Ugnii carries a full crop of its aromatic (edible) berries, Laurustinus is white with flowers, a few Carnation flowers look bright, and Calceolaria Burbidgei, by a wall, gives a splash of chrome-yellow, while Iris unguicularis bears soft lavender, sweetly scented flowers. In Cornwall it is difficult to realise just when winter has come except for the short days. Some Rhododendrons of the arboreum type have been in flower since early November. Violets are a-glow and their flowers are being sold at a penny a bunch; the Snowdrops show their white buds, and Anemone coronaria is in full growth.

In mid-winter, however, undoubtedly the stove house provides the best floral display. A group of Gloire de Lorraine Begonias upon the bench, relieved by Cocos Weddelliana, and a few baskets of the same plant, smothered with soft pink flowers hanging overhead, look very cheerful. I remember the excitement there was when someone found that these Begonias could be propagated from leaf petioles. I believe certain gardeners are fortunate enough to obtain seeds and raise plants that way, but I have never been able to do so. Leaf cuttings are easily rooted and make good plants if inserted in sand in May. For four months they provide a profusion of bloom. They are very useful for house decoration.

for presents, for cutting for dessert dishes, finger bowls, and vases in warm corridors.

Euphorbia pulcherrima (Poinsettia) now in full colour and bloom will associate (in colour) with the Lorraine Begonias and, grown as we can grow them here, they are only about two and a half feet high. I refer to old stools and not the summer-struck stock; the plants are ,treated to a good watering about midsummer and so soon as they break the soil is shaken out from the roots and they are repotted in good turfy loam.

After the plants have been returned to the greenhouse for a few days they are plunged in a sunny spot outside where they are left until the first week in October. They are then taken back to the greenhouse and gradually inured to the heat of the stove so as to develop their gay bracts by Christmas. By these means our plants retain almost all their foliage.

I grow Begonia picta var. Lucerna, with a view to having it in flower through the winter, although a half-dozen plants will almost surely give some of their delightful, chandelier-like cymes of flowers the whole year round.

This Begonia is a wonderful grower; if potted on as root room becomes necessary it will make growth twelve feet high in a year or so from the cutting. The flowers and capsules are of the same soft pink colour. The varietal name is delightfully apt—*lucerna*, a light!

Côleus thrysoides used to be regarded as difficult to grow and I believe we treated it not wisely but too well. The mistake was often made of providing this species with rich and abundant soil and water, whereas it is found that if the roots are kept moderately confined and not watered until moisture is evidently required, success is almost assured. The fact is that this lovely plant will live for a comparatively long period with little or no water without undue risk of loss. Its blue flowers are remarkable, and blooming as it does in mid-winter it is most acceptable. Not that it is the only blue-flowering stove plant in winter, but it is undoubtedly the best we have. It seeds freely and young plants may often be found growing in the gravel of the bench, and these are valuable for stock purposes.

Anthurium Andreanum and its varieties are always in bloom and give a splendid show of spathes. The variety Lowii has crimson spathes of enormous size. I am told that the type will produce spathes of equal size to that of the variety named, but I have never been able to produce them. Plants of this genus grown for their flowers are particularly useful for house decoration. The section which has fine foliage is highly decorative and includes the most easily grown plants imaginable, provided they have rough lumps of good peat, loam, charcoal and crocks of equal size about their roots, they will grow like the proverbial weed

Isoloma hirsutum carries a large number of dull scarlet flowers which stand out conspicuously from the soft green leaves. Of all the useful Gesnerads this is one of the best. Cuttings will strike readily in sand, and the plants may be had in bloom all the year round. The origin of this free-flowering plant is not recorded, but it was introduced to cultivation in 1881.

Various species of Tydea, Clerodendron Balfouri, many species of Cypripedium, Ruellia Portellae, and others, interspersed with Cyperus alternifolius, Fittonia argyroneura and F. Verschaffeltii, Codiaeums, Alocasia species and other old favourites make the stove house as bright as a sunny summer day.

I have enumerated only those subjects which are of fairly easy culture and which require only moderate heat. In any case they join delightfully in making the house gay when there are few plants in the open garden to invite one there. *H. W., Redruth, Cornwall.*

RONDELETIA.

Several species of Rondeletia are very useful for the greenhouse, or intermediate house, the best known species being R. gratissima, R. cordata, and R. odorata var. major. The last-named is the finest for an ordinary greenhouse, its bright orange-red flowers being produced in great profusion over a long period. This Rondeletia makes a fine specimen three or four feet in height and has the merit of flowering freely in quite a small state. It is easily propagated at any time by means of cuttings, using young, half ripened shoots for this purpose.

R. cordata also makes a fine specimen when planted out in a well-drained bed in the greenhouse. It is also a good subject for growing in pots, but requires a temperature of 50° to 60°. It is rather remarkable that many plants will succeed in a low temperature if they are planted out, whereas, if grown in pots, they require a higher temperature to grow them successfully.

IXORAS.

During the winter Ixoras should be grown in a somewhat dry atmosphere and be given rather less water at the roots than in the growing season, when they need a high temperature and plenty of atmospheric moisture. These plants will thrive in a compost consisting of equal parts rich loam and fibrous peat, with sufficient silver sand added to render the mixture open and porous. They are easily propagated at any time by means of cuttings formed of half ripened shoots. Insert the cuttings in pots of sandy soil and plunge the pots containing them in a close propagating case with plenty of bottom heat at command. Well-grown specimens in flower are very decorative, and there being a wide range of colours in the plants Ixoras are worthy of more general cultivation. *C.*

FLORISTS' FLOWERS.

ANTIRRHINUMS.

The value of Antirrhinums is found in their splendid range of colour and form, free and long flowering habit, and ease of culture. From every point of view they have distinct recommendations, and it is not surprising that they continue to increase in general favour. The old practice of propagating hundreds of Pelargoniums for summer bedding has given way in many gardens and parks to the less troublesome one of raising Antirrhinums from seeds sown during the early part of the year, and as the various types differ in height and the flowers have a wide range of colours of brilliant hue the plants offer plenty of scope for beautiful effect, so that there seems to be no cause to complain of the change.

The common Snapdragon, Antirrhinum majus, originally introduced from the shores of the Mediterranean, was, formerly, propagated solely by cuttings, but the numerous varieties of to-day are so perfected that it is indeed rare when they fail to come true from seed. Antirrhinums are generally grouped into three classes according to their habit of growth, viz., tall, ranging from thirty to thirty-six inches; intermediate, eighteen to twenty-four inches, and dwarf or Tom Thumb, which usually range from nine to twelve inches. Each class comprises a large number of varieties, and novelties are introduced every year. The intermediate class is, perhaps, more generally useful and contains some fine forms, possessing bushy habit, which produce their flowers in great profusion from early summer to late autumn.

Though the Antirrhinum is naturally a perennial, it will respond to treatment as a biennial, and is still quite happy if treated as an annual. A good deal of the present-day popularity of the plant is, no doubt, due to the fact that it may be grown as an annual, for much time and labour are saved when bedding plants can be raised and flowered within a few months instead of, as before said, raising Pelargoniums and other subjects by cuttings as soon as the flowering season comes to a close, and so have to have them in hand all the winter.

Treating the Antirrhinum as an annual, seeds must be sown from January to February in the gentle heat of a greenhouse. Boxes or pans, about four inches deep, filled with a fine, open compost, well watered before sowing, are best; care must be taken to see that the seeds are not covered too deeply, for they are small, and a sifting of very fine soil one-sixteenth of an inch deep over them is quite sufficient. Transplant the seedlings, so soon as they are large enough to handle, into boxes filled with a similar compost, and then, as they become established, they should be gradually hardened by removing them to cooler quarters. By the beginning of April they will be ready to transplant into cold frames. The compost then should consist of good soil, well rotted manure, leaf-mould and sand, and should be prepared some days beforehand.

Care will be necessary to see that the tender foliage is not scorched by a sudden burst of sunshine. Slightly shade the frames if the light is too strong and when the plants are well established air should be freely admitted on all favourable occasions. By the middle of May the young plants will be ready for their flowering quarters, but they should be properly hardened by leaving the lights off the frames for quite a week before the operation takes place. To avoid undue check the plants should be lifted carefully from the frames so that a good ball of soil remains round the roots. Antirrhinums, if treated in this manner, will usually commence flowering early in July and often continue until November, and by taking advantage of the wide range of colour and varying heights of the different classes some pretty bedding effects may be obtained.

Another recommendation for the Antirrhinum is its usefulness as a pot plant for decorating the conservatory in the early spring. Seeds are best sown in the autumn for this purpose. The seedlings should be potted singly into small pots and placed in an airy position near the roof glass of a cool house. "Stop" the plants once and, when new growths have appeared, pot them into five-inch or six-inch pots. The plants, if liberally treated, will produce at least two or three good spikes of flowers which will give a display for several weeks, and will come in at a time when flowers are not by any means abundant. The varieties in the intermediate section of the Antirrhinums appear to be the most suited to pot culture, but no doubt there are possibilities with the tall and dwarf varieties as well. *H. W. Stenning.*

DETERIORATION IN CHRYSANTHEMUMS.

It must be fairly common knowledge, both among trade growers and private gardeners, that a stock of Chrysanthemums grown for several years in succession in the same environment will lose vigour to such an extent that propagation from the cuttings of that stock can only be persisted in at the expense of quantity or quality of bloom produced. Frequently large batches of Chrysanthemums may be seen suffering from this particular cause, and it is not uncommon to hear the grower confess that he is mystified as to the reason a certain variety is not succeeding so well as in previous years.

In gardens and nurseries where economy is driven to the extent of mixing old potting soil with new, the deterioration in certain varieties is markedly rapid, and instances could be given where actual reversion rather than mere loss of substance and stamina has taken place. It is interesting to note that even in some of the worst of such cases cuttings taken from the stools and sent to be rooted in fresh quarters and in totally different environment, have produced vigorous plants and flowers of true form. In private establishments where good maiden loam and Oak or Beech leaf-mould is plentiful, the process of deterioration may be expected to proceed at a slower rate, and if soil alone was the controlling factor the trouble might well be non-existent in many places. It is evident, however, that soil is not alone the cause of the loss of vitality, for when nothing but new soil, brought from a hitherto untapped source has been used, stocks of several market varieties that had shown signs of deterioration failed to recuperate when propagated and grown in the new soil, and, indeed, persisted in their downward course. Cuttings of these, again, turned out thoroughly satisfactory when sent to a distant grower.

To what extent a plant may languish as a result of certain atmospheric conditions I do not profess to know, but it certainly seems feasible to me that a Chrysanthemum grown a few seasons in what we humans find the relaxing air of a river valley may benefit largely by transference to a bracing atmosphere and a greater altitude. Whether the reverse may be taken for granted as being accurate I should not like to state, but I do know that cuttings from the North are a success in my low-lying spot.

Water has, in my opinion, a great deal to do with the deterioration of a stock of Chrysanthemums, and that, I believe, accounts for the fact that a change of soil is not alone sufficient to re-invigorate a declining stock. By sending cuttings or receiving them from considerable distances the change is complete. Even the sending of cuttings unrooted, rather than rooted, appears to me to make a considerable difference, and all observations tend toward confirmation of the view that frequent change of stock is quite as essential with Chrysanthemums as it is with Potatos.

The trouble is that few even among private gardeners can under present day conditions entertain the idea of discarding the stocks they have and procuring entirely new ones. My interests are sufficiently commercial to make me wish this could be generally done, and yet utter waste is not really calculated to benefit trade, and since it is well proven that cuttings of Chrysanthemums will recuperate in a new environment, why destroy all? It seems to me that exchange of Chrysanthemum stock might very well be adopted between growers, to their mutual advantage.

From the point of view of the trade grower such a suggestion may perhaps be deemed heresy, but is it really so? There are very few gardens at the present time wherein the annual expenditure is not rigidly confined to limits that compel many economies. If old stocks can be exchanged at trifling cost, the gardener is able to invest in a few of the latest novelties,and these are a more renumerative trade to the specialist than the older, every day sorts. By keeping the main batch up to a high standard of quality, a gardener will sustain the interest of his employer in Chrysanthemums, and that will also encourage investment in new varieties.

In journals that cater for the live stock fanciers' advertisements offering or requesting breeding stock for change of blood are regularly seen They do no injury to the breeders for profit—in fact, those advertisements make for greater interest. An exchange column in the *Gardeners' Chronicle* might well be made a great boon, and would not necessarily reduce the amount of cash spent on garden stock. It is far better for horticulture all round that such a plan should be adopted than that economies should be effected by simply growing less, as has been the tendency in too many gardens of late. *A. J. Macself.*

TREES AND SHRUBS.

TWO NOTABLE NEW BARBERRIES.

Two of the most beautiful shrubs introduced from China in recent years for general effect in herbaceous and shrubbery borders for spring, autumn and winter decoration are Berberis subcaulialata and B. Wilsonae. B. subcaulialata (Fig. 8), forms a neat, compact bush, with gracefully arched branches that are well furnished with glaucous foliage, and freely covered with prettily coloured coral-pink berries. At Christmas this plant was quite a picture. Berberis Wilsonae, although dwarfer in stature, is a remarkably decorative shrub. It makes dense growth and the branches are well clothed with small foliage and needle-like spines. The plant is smothered with pretty yellow flowers in the flowering season, and during late autumn the sprays of cream-coloured berries are most effective; they show a tinge of pink in the early stage, finally assuming a bright coral-pink colour. The Barberries are all of simple culture, and thrive well in a fairly rich loam. *W. I.*

BERBERIS HOOKERI.

The dense, tufted habit of this evergreen Barberry and its dwarf and compact nature render it a useful subject for a low, informal edge, or for growing among taller shrubs and trees. Nor is it to be despised as a single specimen, more especially where it can be afforded a place on a level with the eye, in which position the yellow flowers, hanging on their long, thin stems, as well as the black fruits that follow them, may be seen to full advantage. We have, moreover, found this species to be very amenable in the matter of soil, thriving on the top of a hot retaining wall or in a cool root-run under the drip of trees with equal success.

B. Hookeri makes a bold, close thicket of erect stems slightly arched and branching towards the extremities. These are set with thorns and spiny leaves; the latter one inch to two inches in length and about an inch in width, are a dark, glossy green with glaucous undersides. The older leaves retain the vivid tints of autumn throughout the greater part of the winter, and the berries usually hang until the new flowers are appearing in May. *A. T. J.*

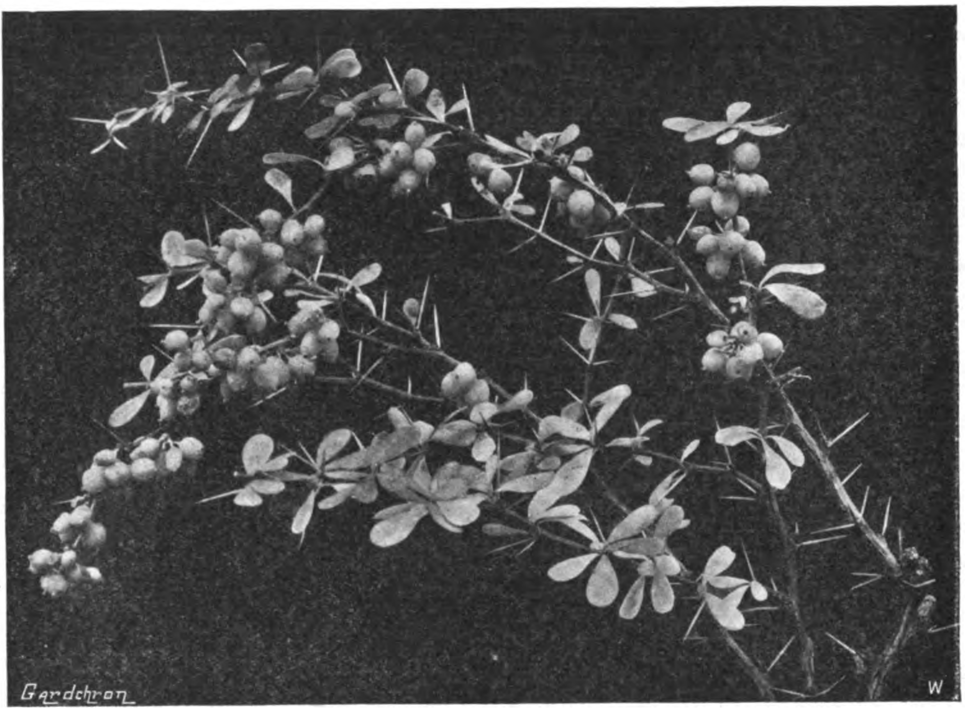

FIG. 8.—BERBERIS SUBCAULIALATA.

COTONEASTER PANNOSA.

This species is one of the most charming of its genus in midwinter; the hanging clusters of fruits have now lost the grey felt which covered them during the growing stages and stand out in a bright glossy crimson. These berries, moreover, appear to be disliked by birds, for they often remain on the branches until February, or even March, and as C. pannosa is evergreen and a most prolific cropper, a bush at this season is remarkably attractive.

Though it bears some resemblance to C. Franchetii, this is a much more elegant shrub, the finely tapered branches ascending to some 8 feet or more and sweeping over with a Willow-like grace. The oval, pointed leaves, about an inch long, are a soft Olive-green, glaucous beneath, and the ends of the young wood are covered with a grey felt, the bark on the older parts being a dull Plum-red. This fine species is quite hardy, of easy culture, and it grows away quickly in its earlier years. Seed offers the simplest method of propagation, and self-grown seedlings are usually plentiful. C. pannosa is a native of Yunnan, where it grows at altitudes of 8,000 feet to 9,000 feet. It was first grown at Kew in 1892.

CYTISUS PROCUMBENS.

This Broom, as its name implies, is a weeping variety, and is a very charming plant, grown either as a standard or dwarf specimen. In contrast to those of C. kewensis, the flowers are a very rich yellow and the plant is covered with them in May. It is not a rank grower, but planted in the front row of the shrubbery as a standard it always attracts notice.

CYTISUS DALLIMOREI.

Of all Brooms, other than those with yellow or white flowers, this hybrid is one of the most beautiful. It is a strong, healthy grower, of rather dense habit, and in the blooming season is smothered with flowers of a pale rose colour, shaded with reddish-mauve.

It makes a splendid standard owing to its dense habit, which renders it less liable to be broken by strong winds. There is no other Broom with anything like the same colour, and those planting flowering shrubs this season should not omit it. I have never seen it so full of flower as it was last spring, and the blooms were of a deep colour, possibly owing to the mild winter of 1922-23. *T.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

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LILIES IN 1923.

HAD this chronicle been written at midsummer instead of at the end of the year, the story it tells would have been a very different one—a story of shattered hopes and almost total failure. That it should now be possible to report fairly well of the season as a whole is due to one of those frequent and remarkable changes in the weather which justify the old saying that the climate of Britain is at once the best and the worst in the world.

Looking back over the records of the last two decades, the writer can find nothing comparable to the year just ended. In the South it will be remembered for the consistently open weather of the winter of 1922-3, for six weeks of exceptional heat and drought during July and the first half of August, and, following an uncomfortably moist autumn, a more rigorous early winter than we have had for many years. Except for a fleeting snowstorm in the third week of February, there was neither frost nor snow last winter in the South. Where Nature is concerned such immunity is seldom conferred on us without a corresponding sacrifice, and on this occasion the sacrifice was soon demanded.

Gardeners will not readily forget how, when spring had passed to summer and the latter had blazed up in May week, the fair promise of the first four months of the year was belied by an early summer as cold and cheerless as they can recall. From the second week in May till the end of June, it almost seemed as if vegetation was in a state of suspended animation. Cold, dry, north-easterly winds prevailed and an impenetrable curtain of cloud hid the sun; even the birds were half-hearted in their song. In many places Ash trees were still in bud at the end of May. A veritable plague of aphis and of the many plant diseases which sunshine holds in check was doubtless a natural result of the abnormal conditions, but the plague can seldom have reached such unmanageable proportions.

Except in maritime places in the South and West, there were neither Roses nor Lilies in June—a state of affairs new to these annual notes. The conditions favoured Botrytis and it was rampant, especially on plants of L. candidum, for they had been active all through the mild winter and were in an unusually forward condition. So effectively was this species crippled in the South and Midlands that in many places it failed to flower.

This old plant depends on the sun almost more than any other Lily for its welfare, and it is certainly true to say that it is sun-proof to a greater degree than other Lilies. In a prolonged drought, when every other species known to the writer and not irrigated, will be in distress, L. candidum remains imperturbable, a slight stunting of the normal growth alone indicating abnormal conditions. L. Henryi approaches it in drought-resisting qualities, but being a stem-rooting species it does not suffer ground-baking to the same degree as the other. Over and over again it has been noticed that a thorough sun-baking of the bulbs of L. candidum in summer, before new growth begins in August, conduces to a fine display the following year; and unless the coming season provides a repetition of the baneful conditions prevalent last June, we may safely expect to find this species in floriferous form next summer.

At midsummer the outlook for Lilies was very gloomy. Sunshine was about 200 hours below the average of the last thirty years for the first six months—a very serious matter for Lilies—and the most optimistic were inclined to despair. Then occurred one of those changes which make gardening in Britain such a gamble. They are characteristic of our climate and in one form or another are often sprung upon us, yet always come as a surprise to gardeners old and young.

Belated summer burst upon us with a rush. Without warning the country was plunged into sub-tropical conditions, and ordinary limits of temperature were soon passed. But more astonishing than the violent change in the weather was the almost lightning-like rapidity with which inanimate life responded to the change. Buds which had been somnolent for weeks, burst suddenly into bloom; plants which do not usually flower till August were spurred on, and we had the unusual spectacle of early, mid and late summer plants abloom together. Aphis, with which Roses and fruit trees in particular were literally swarming at midsummer, disappeared as if by magic; even Botrytis was banished and much of the mischief it had caused negatived.

It was a great time, but as ever, a month of such exceptionally dry heat was enough for average gardens and gardeners in the South. Until gardeners change their methods such extremes are not for our temperate country, and, as usual, a few weeks of torrid drought found nine out of ten gardeners helpless in face of a condition of things of which they have had much experience in the last three years. At such times schemes for the irrigation of gardens are thick in the air and on paper, but such is the average Englishman's inborn belief in the fickle character of the climate, that he cannot bring himself to spend even a moderate sum as provision for a contingency that may pass at any moment and may not recur for years. And so money is lavished on the

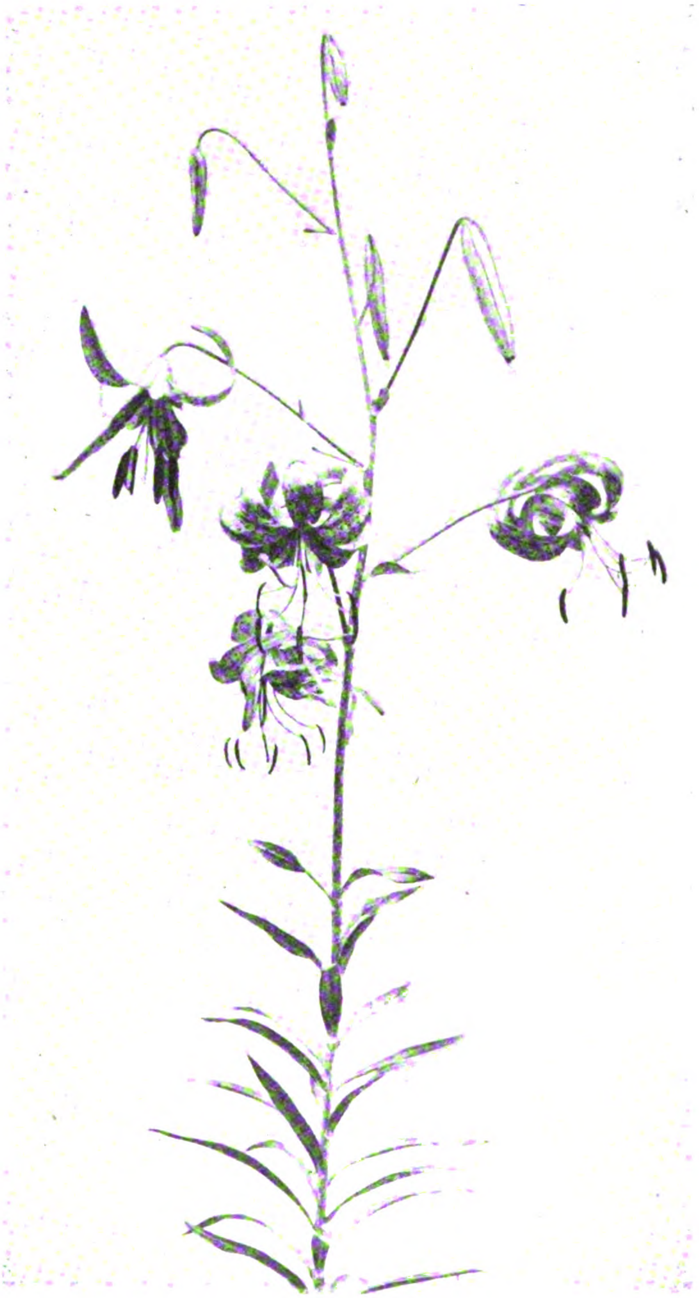

FIG. 9.—LILIUM MAXIMOWICZII AT COOLHURST, SEPTEMBER, 1923.

construction of new rock gardens and the making of new flower borders without the smallest provision for irrigation, on which, in times of drought, the welfare and, to some extent, the existence of many plants depend.

It is not often that anything occurs to throw Lilium pyrenaicum, the earliest of Lilies, out of its stride, and the fact that it was not in bloom till midsummer is fair indication of the lateness of the season. It is, indeed, an exceptional year in which this species is not in flower early in June. The check it suffered in company with all other Lilies, seemed to do it no harm, but had a decided effect on L. giganteum, which, with the inevitable exceptions, was comparatively poor last season in the South.

The exceptional conditions and, in particular, the drought of the early summer, were altogether too much for L. tenuifolium, L. rubellum, L Duchartrei, and L. cernuum, but L. regale and the rest of the mid-season species were almost as good as usual. Had the sub-tropical conditions lasted another fortnight, it is probable that all Lilies would have been in flower before the end of August; but the complete reversal of the weather which occurred in the third week of that month, practically brought the season to an end. None of the late-flowering group, except the so-called variety of L. Leichtlinii with red flowers (Fig. 9), was up to the average. In recent years importations of this Lily, which cannot be kept distinct from L. Maximowiczii, have shown unusually pronounced villosity on stem and bud, and this character is clearly shown in the photograph. L. myriophyllum, which promised well at one time, and that difficult species L. Sargentiae, came to nothing. Seed of the earlier species was plentiful, but there was a poor harvest of the rest. The latter part of the season seemed to have been even worse in Scotland, where, when there is a sufficiency of sun-heat, the humid climate of the west coast appears to suit some Lilies better than the drier atmosphere of the South.

So far as the writer knows, no new species of Lilium has appeared during the year, but in the summer, what may prove an acquisition flowered in the Edinburgh Botanic Garden. It is illustrated in Fig. 11, and, in Professor Wright Smith's view, is a yellow form of L. Delavayi. The photograph, reproduced by courtesy of the Regius Keeper of the Edinburgh Botanic Garden, from a figure drawn by Mr. Adam, is representative, as Mr. Forrest noticed that, while about half the wild plants he came across threw only the one flower, the remainder bore two or three blooms. The plant has the elegant habit of some of the Fritillaries, and is deliciously fragrant. L. Delavayi has not hitherto proved particularly amenable to cultivation in our climate; it doubtless needs a drier winter climate than this country usually enjoys, and of itself is not sufficiently attractive in colour or habit to call for the exercise of much cultural attention; but this fine yellow-flowered Forrestian form (F. 21,578) which seems to lean to L. yunnanense, merits all the cultivator's skill, and will probably need it.

Seed of that elusive species, L. lophophorum, Franchet, collected by Mr. Forrest in his last expedition, has been received from Mr. Reginald Cory. When last seed reputed to be of this species came to hand some years ago from Messrs. Bees, it proved to be a form of the species now known as L. Davidii, and so far as is known this species is not now in cultivation. It is not likely to prove very startling.

Several correspondents have been kind enough to send specimens of white trumpet Lilies, of which the identity has puzzled them. They belong to the group so loosely known in the past as L. Brownii, but have nothing to do with the most distinct of Asiatic Lilies. The synonymity of the section is undoubtedly much involved, but the relationship of the majority of these white trumpet Lilies is generally with that most variable plant L. Sargentiae on the one hand and L. myriophyllum on the other. The most interesting at the moment is that illustrated in the photograph (Fig. 10) taken by Lady Alice Shaw-Stewart, of a clump growing in the garden at Ardgowan, and raised from seed thought to have been sent home by Mr. Farrer during his exploration of Kansu. The narrow trumpet, and the general habit of the plant do not, however, suggest affinity with L. centifolium, the only trumpet Lily known to have been collected by the heroic explorer in Kansu.

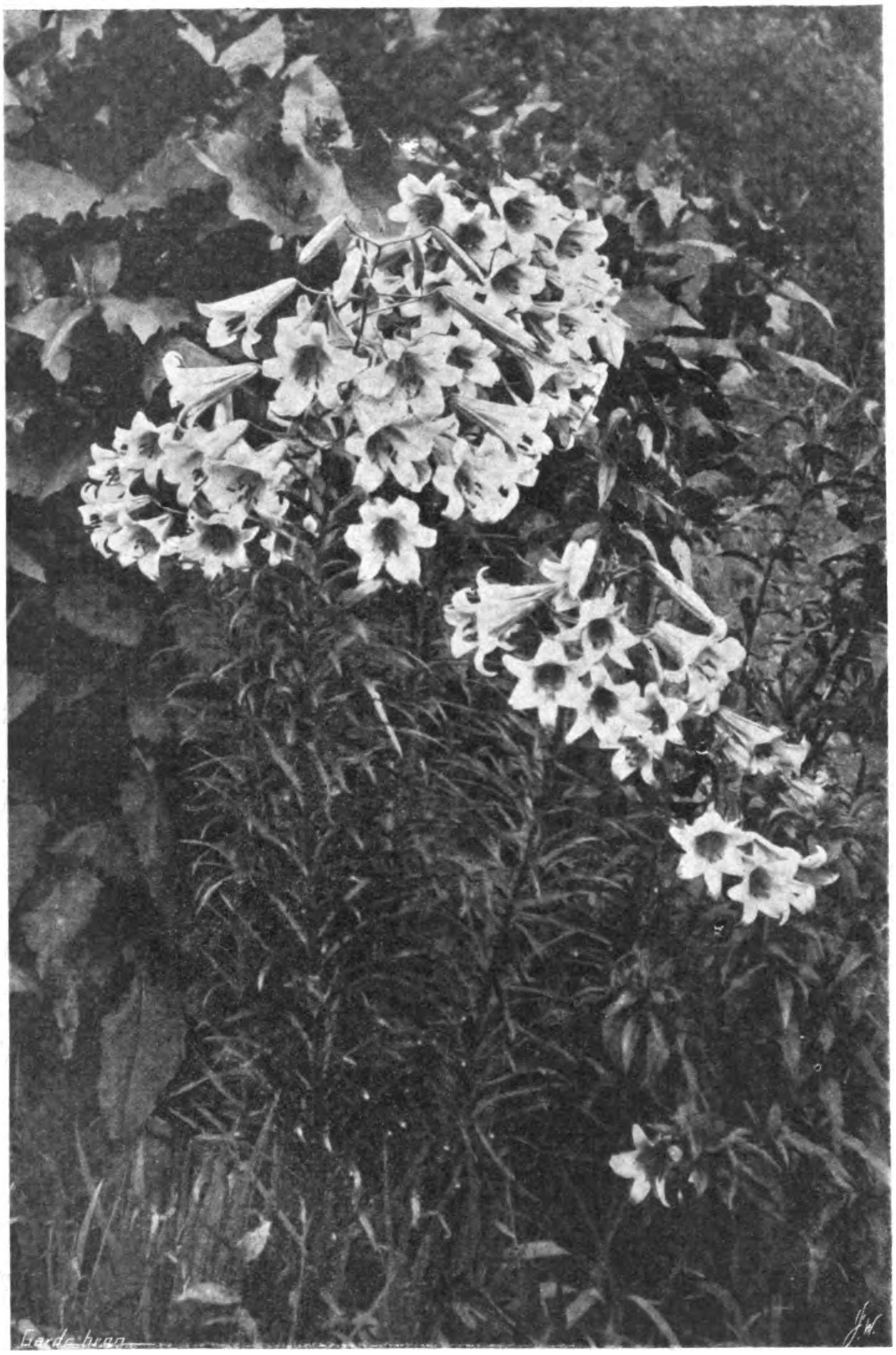

FIG. 10.—LILIUM SP. FARRER, AT ARDGOWAN SEPTEMBER, 1923.

Not so many summers go by in which one does not see or hear of some new hybrid Lily. Seldom of much account, they usually pass like comets across the horticultural heavens, their disappearance generally leaving some pocket a good deal emptier than before. It is almost as if Nature had determined that here, at any rate, was a genus so select, elegant and beautiful that all efforts to "improve" it should be predestined to fail.

In point of fact, mongrel Lilies, in the main, have but a short life, and we need not regret that it should be so, for few of them ever reach the sixth form. The only one the writer can recall with a virile constitution is L. testaceum, probably a natural hybrid. During the summer, what amounts to a white form of this Lily, called "White Knight" was shown at Vincent Square by Messrs. Wallace.* It is said to be a testaceum × candidum cross, with, apparently, the former as the mother. When the cross is reversed and L. candidum is the mother plant, the progeny is candidum with no sign of other blood, and such mingling of the pollen is a recognised method of obtaining seed from that mulish species L. candidum.

For the student, 1923 will be memorable as furnishing the most important contribution which has been made for many years to the literature of the genus Lilium—the critical analysis of a group of Chinese Lilium,† prepared by Professor W. Wright Smith, Regius Keeper of the Edinburgh Botanic Garden.
A Grove, December 24, 1923.

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* *Gardeners' Chronicle*, Aug. 25th, 1923, p. 113, fig. 40.

† *Notes on Chinese Lilies.* By. Prof. W. Wright Smith. *Trans. and Proc. of Bot. Soc. of Edinburgh.* xxxviii., Part iii.

CONFESSIONS OF A NOVICE.

My gardening experience is of too recent date to enable me to recall with the melancholy satisfaction appropriate to the reminiscent the havoc wrought in gardens by the great frosts of long ago. Nor am I able to state from general observation whether the recurrent spells of frost which are making this winter so long drawn out, have wrought much damage to garden plants in general; for they have done so much to one tender subject—this novice—that the only observations he has been able to make are those taken from a southward-looking study window.

Just outside this window is a large sheltered bay, held up by a terrace wall and enjoying complete protection from the north, partial protection from the glass sides of a loggia on the west, and a little provided by projecting bay-windows reaching to the top of the house on the east side of this sheltered spot. This large, sheltered bay contains a number of plants, some of which were given this preferential treatment because of their doubtful hardiness. Now, as I watch the misty rain obscuring the distant landscape, I can nourish my grievances by noting the damage which 'all my little ones, all my pretty ones," have sustained. Ceanothus rigidos two feet away from the wall—an error in planting, surely—looks as though it were in flower: some of its branches have the same dusky, dark, blue-purple which characterises its flowers, and that colour is sure proof that the branches which exhibit it are dead. Next to it is the hybrid Escallonia from Edinburgh, E. edinensis, and that too has suffered, in token of which its leaves are shrivelled and yellow.

The Banksian Rose, installed in a snug angle of the house with full protection from north and east, has shed its leaves and looks far from happy. Olearia macrodonta, just in front of it, has its terminal shoots each bent on itself limply; but on the older wood the leaves of this handsome plant are unscathed, Ceanothus Gloire de Versailles in the same sheltered angle has been damaged somewhat severely, albeit not mortally; but the dwarf-growing, charming, blue, starry-flowered Aster rotundifolia, which has another name forgotten by me, has been killed outright—reduced, indeed, to a sodden, brown pulp. Berberis Wallichiana, placed further outward and hence more exposed has, on the other hand, suffered not a jot. Nor has Ceanothus dentatus, which stands beside C. rigidus, sustained any damage.

Along the borders of this bed the Catmint, Nepeta Mussinii, looks but little the worse for the frost, whereas the large and larger-leaved N. macrantha has been killed to the ground. Chimonanthus fragrans, which also should be a foot or two nearer the sheltering wall of the house, has its flower buds plump and ready to open, but, nevertheless, refuses obstinately to do anything except retain most of its leaves—a reluctantly deciduous plant. In spite of the weather Hammamelis mollis standing far out in this projecting bay is in full flower, though the flowers themselves look pinched and small, grudgingly keeping their tryst with Christmas time. Brilliant in colour, Berberis Wilsonae throws its red sprays over the face of the retaining wall, and yellow Polyanthuses, which form a ground work beneath these shrubs, are flowering close to the ground. Flower they must, but they will not elongate their flower stalks while this unpleasant weather lasts.

Tits, which take continuous shies at the suspended Coconuts, and robins and blackbirds and a missel thrush and, of course, impertinent sparrows, all flock to this cover in the hard weather and make the corner lively with their quarrelling. At this moment comes my gardener to the window holding up a great tuft—a foot across—of Erodium macrodenum, its tap root cut off as though with a knife. This is a puzzle indeed, for the plants—all of which have now cut themselves off in their prime—are hardy and perennial. Perhaps this loss is not properly to be laid on the frost and I am inclined to suspect the Persian cat who coyly receives suitors and after alluring them flies wildly from their advances, but why it should seek out and destroy these plants I know not.

The Cistuses C. purpureus, C. ladaniferus, C. villosus, C. florentinus, C. crispus and C. corbariensis all appear, whether reputed half-hardy or not, to revel in the cold and wet weather, getting a glossier leafage with it, and the self-sown seedlings of C villosus which come up by the hundred provide sure relays of this handsome foliage plant. Whether the sequel in later years will be so cheerful is, of course, doubtful, for these Cistuses are short-lived plants. The propagating frames however, easily provide for their replacement.

How instinct with life is a garden. You set out in sorrow to catalogue your losses and find pleasure in writing their memoirs only to discover, perhaps, that few will find pleasure in reading them. One irrelevant observation and this confession is concluded. Despite the frost the leaves are still hanging on the hedges of Hornbeam, which make a girdle betweent the pleasure and the kitchen garden. Though leafy, the Hornbeam begins in these grey days to wear a sorry look except where chance and the gardeners have piled the winter logs high behind them. There, with this background, they make a brave, almost purple, patch of colour. Profitting by this hint I shall plant behind the Hornbeam some dark evergreen hedge with a grassed avenue between. But what to plant I am uncertain. It must be dark green, grow quickly and tall, be clippable and its roots must not raid the kitchen garden! The yellow Broom strikes its root deeply and not too widely, and if pruned after flowering may be kept dense. It also grows apace; but I am sure that a more knowledgable gardener could advise something better, and hope that of his kindness he will. *A. N.*

NOTES FROM A WELSH GARDEN.

The Sarcococcas seem to be uncommon in gardens, though it is over twenty years since their introduction from Western China by Wilson. These hardy little evergreens we find distinctly useful, inasmuch as they do so well in moist, shady places where the fresh green of their highly-polished leaves is attractive at all seasons and especially in winter. Both S. ruscifolia and S. humilis have been in bloom here for several weeks and if their ivory-white flowers are inconspicuous they are pleasantly fragrant, an attribute which is, I believe, not common among the Euphorbiaceae

Much later than usual, Erica darleyensis is only just (January 1) beginning to show colour here, having been kept back by frost and dull weather. The result is that E. carnea will be at its best by the time the former is in full bloom. The buds of E. lusitanica are rapidly becoming more conspicuous, and both it and E. Veitchii will be beautiful objects by early February, weather permitting. Fortunately we have thus far had no snow to speak of, so that the tree Heaths have escaped what is usually their greatest risk—the breakage of their brittle twigs and branches.

Some of the shrubby Veronicas of the Andersonii set have afforded cheerful masses of colour on a sheltered bank throughout the winter, those with rich crimson and deep violet flowers being especially good. But the most charming of this race has been a large bush of a pure white variety called, I think, Mont Blanc. Growing at the foot of a south wall this has been covered with blossom since October and it was not the least affected by a frost that cut down Sollya heterophylla and severely "singed" Cantua buxifolia situated close by.

One of the most remarkable foliage plants at this season is Geranium anemonaefolium. This fine Madeira species looks very unhappy if the thermometer registers more than 10° of frost, but it can withstand a good deal more than that and makes a spontaneous recovery as soon as more genial conditions prevail. What renders this plant so attractive in winter is its habit of throwing up a succession of its lusty, handsome leaves throughout this season, ceasing only during periods of low temperature. These leaves, held on rigid stalks about 1 foot long, are like those of the Water Hemlock, broadly palmate, deeply cut, and of a lively green.

Cistus vaginatus, which also comes from Madeira, has been on trial here for a couple of seasons, and its recent behaviour under 10° of frost seems to suggest that it will not prove hardy enough for growing in the open with us. The odds are heavily against any hairy subject that is only on the border-line of hardiness when there are rapid alternations of rain and frost such as we have been experiencing of late. But if C. vaginatus will not live in the open here, it will be the only one of its kind in a fairly representative collection that we shall have had to provide with wall shelter.

Gentiana acaulis (the plant most of us know by that name) has not been without some flowers since summer, and I have just (New Year's Day) counted fourteen fully expanded blossoms on a bed that has not been broken up for at least ten years. The bed in question is actually a narrow belt running between a lawn on one side and a coping of large stones on the other, the latter being employed to do the work of a low retaining wall. The soil in which the Gentians are growing is, therefore, very sharply drained and it is of a porous, gritty nature. Yet the plants flower abundantly and it is probable that the root restriction effected by the turf on one side and the stones on the other renders the usual lifting and dividing as a means of encouraging blossoming less essential.

In association with the fine deep blue of this old Gentian there happens to be the rich gold of that beautiful little Scots Pine, Pinus silvestris aurea, which is growing hard-by. This is an exceedingly slow grower, a miniature of the type, and the colour of its foliage is never so good as in mid-winter. In the same company are some Junipers and among these is an interesting prostrate form of J. communis. This was recently found (on granite) on one of the Welsh mountains, a small colony of it quite remote from any other members of the species, which latter, so far as my knowledge goes, usually follows the limestone.

Daphne Dauphinii (hybrida) is still carrying several clusters of its deliciously fragrant, rich purple-lilac flowers with which it has been adorned since November. There are some fine sprays of bloom on Cytisus racemosus (Genista fragrans) grouped on a warm bank where these shrubs are sheltered from hoad frosts by the branches of an old Oak, and there are Winter Aconites (Eranthis) and Anemone Hepatica already in flower in the rock garden. *A. T. Johnson, Talycafn, N. Wales.*

ORCHID NOTES AND GLEANINGS.

LAELIA GOULDIANA.

This bright purple species has been making a good display with the original importers, Messrs. Sanders, St. Albans, throughout the winter, and in other gardens where it is grown. Its slender stems, with heads of pretty and durable flowers, make it an ideal subject for decoration in winter and it thrives in an ordinary warm greenhouse or conservatory. It was given a First Class Certificate at the Royal Horticultural Society's meeting on December 9, 1890, when some discussion took place as to whether it was a true species, a variety of L. autumnalis, or a natural hybrid of L. furfuraceae. Time has proved it to be the most constant species of its class.

"BLACK-LEG" OF PELARGONIUM CUTTINGS.

A TROUBLE with which all horticulturists are familiar is that which is sometimes termed "black-leg" of Pelargonium cuttings. Cuttings taken late in the season are especially prone to succumb, (failing to callus and form roots, and turning blackish at the base. Complete rotting follows rapidly.

In this country the trouble has been usually attributed to Botrytis, which sooner or later almost inevitably occurs on the soft, rotting stems. Some recent examinations by the writers, however, suggested that Botrytis may not be always the primary cause Evidence of the presence of Pythium, the well-known "damping off" fungus, was obtained in the case of some cuttings examined by one of us in February, 1922.

In October of 1923 a batch of cuttings in small pots was received, with the information that the grower was losing the great majority of his cuttings. Sections of obviously diseased cuttings again indicated the presence of unseptate phycomycetous mycelium, and steps were taken to isolate the fungus. From sections of one of the affected cuttings a pure growth was obtained which was found to grow very rapidly on ordinary malt agar, and in about five days produced on this medium sexual organs of the well-known type characteristic of Pythium de Baryanum.

Towards the end of November, another of the same batch of cuttings which had previously appeared healthy was seen to be developing the characteristic blackening at the base of the stem. When this was examined a week or so after numerous sporangia of Pythium were found on the old blackened portion.

In both these cases very little Botrytis occurred on the diseased stems, although in the same greenhouse it was frequent on dead remains of other plants.

A search among the literature dealing with Pythium diseases gave a reference to a paper on this very subject which seems to have been generally overlooked, and is, therefore, worth calling attention to. In *Gartenflora*, Vol. 59. 1910, p. 209, Dr. L. Peters described this disease of Pelargonium cuttings, and gave an excellent coloured figure of an affected plant. He also isolated Pythium de Baryanum from diseased cuttings, and was successful in reproducing the disease artificially, by planting healthy cuttings in soil inoculated with a pure culture of the Pythium.

On the other hand, it seemed probable that Botrytis may sometimes produce somewhat similar symptoms. Some late cuttings in the propagating frames at Kew were examined, and all showed Botrytis in plenty, while no satisfactory evidence of Pythium could be obtained. Further, a fresh cutting planted in sterilised sand in which small fragments of a Pythium culture had been buried became infected through two of the lower leaf-scars with Botrytis. Brown lesions were produced, which rapidly became confluent, and from the diseased tissue Botrytis was re-isolated, while the Pythium, perhaps because of the low temperature (the experiment was made in November) and lack of humus, failed to infect at all.

So far as at present indicated, it would appear that Pelargonium cuttings may succumb to two very different fungi—namely (1) Pythium de Baryanum, which is present in the soil, infects the base of the cutting and produces a soft, black rot, extending from the base of the stem upwards: and (2) Botrytis cinerea, which infects by means of spores carried through the air and deposited on any wounded surface, such as the leaf-scars, and produces a lighter brown lesion which is (at any rate, at first) not so soft as that caused by Pythium. Control measures must necessarily vary according to the fungus concerned.

With regard to Pythium, it should be an easy matter to prevent attack, either by soil sterilisation, or perhaps by using the "Cheshunt compound," which has recently been found so effective for the damping off of Tomatos due to Phytophthora cryptogea, &c. Some growers appear to avoid the trouble profitably by rooting their Pelargonium cuttings in clean sand. Botrytis, on the other hand, is more difficult to deal with on account of its ubiquitous nature. Best results are likely to follow from attention to scrupulous cleanliness in and around frames and houses, removal and burning of affected cuttings before the fungus produces a crop of spores, and the avoidance of too moist an atmosphere. *W. Buddin and E. M. Wakefield.*

[THE Cheshunt compound mentioned in the above article is a fungicide containing a mixture of copper sulphate and ammonium carbonate in the proportion of two parts, by weight, of the former to eleven parts, by weight, of ammonium carbonate. The ammonium carbonate should be fresh ground into a fine powder, mixed with powdered copper sulphate in the above proportions and stored, dry, for twenty four hours in a tightly-corked glass or stone jar before use. The solution is prepared by dissolving one ounce of the dry mixture in a little hot water and adding two gallons of water.—EDS.]

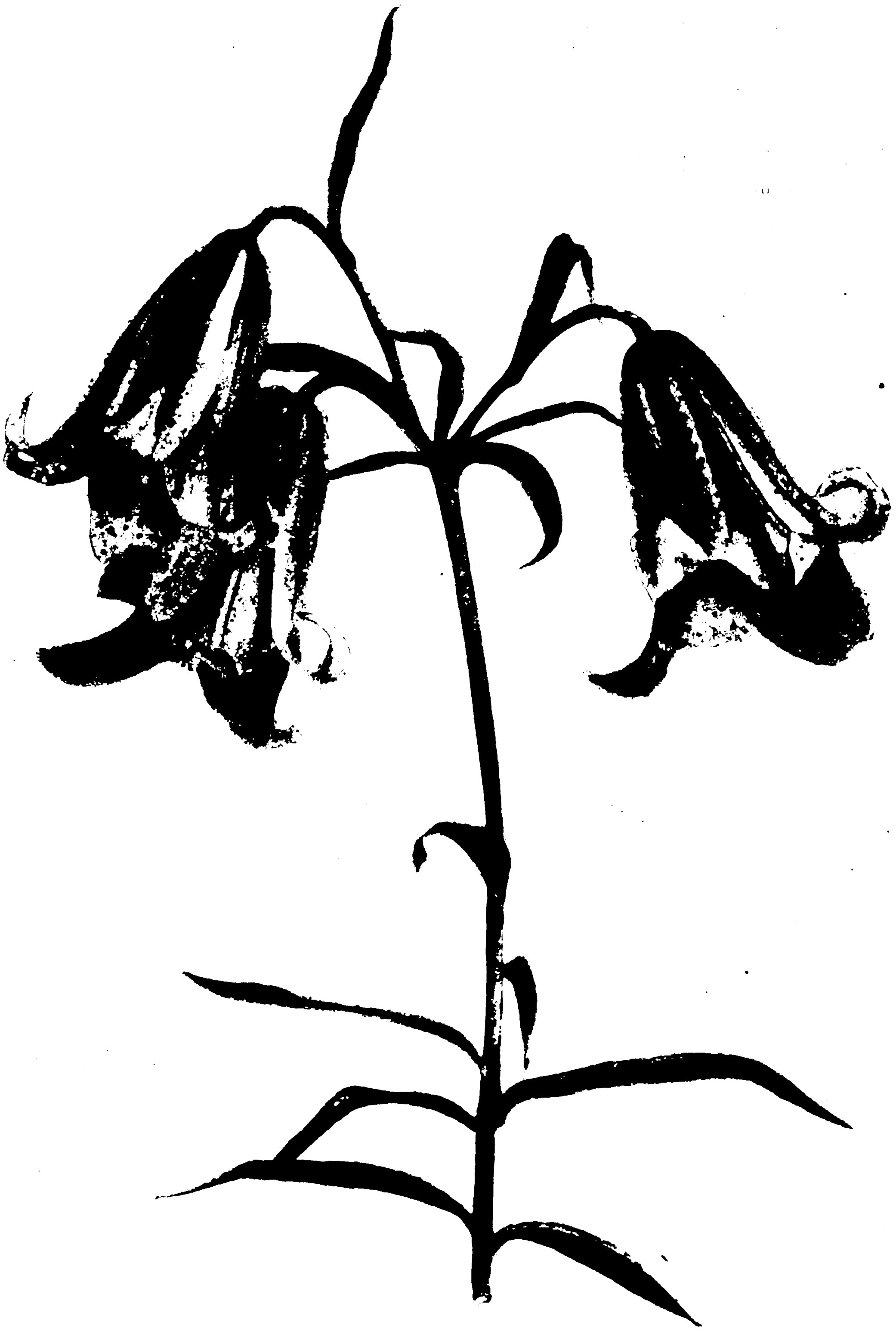

FIG. 11.—LILIUM SP., FORREST, 21578, AFF. L. DELAVAYI, AT EDINBURGH BOTANIC GARDEN, JULY, 1923; FLOWERS YELLOW. (SEE P. 22).

NOTICES OF BOOKS.

Gardening for the Twentieth Century.

HORTICULTURE in the present century is very different in many respects from that of the nineteenth. The ornamental part of it is much more concerned with the open air than it was in the time of our fathers and grandfathers, and it has also to be carried on on less costly lines. The "stove," with its Crotons, Dracaenas, Stephanotis, Eucharis, and so on, that many of us knew so well in our younger days, has either disappeared or is now devoted to more strictly utilitarian purposes. The cooler greenhouse has not gone so utterly, chiefly because it does not require so much coal, but the charming collections of Acacias, Cape Heaths, Epacris, &c., scattered abundantly over the country thirty to forty years ago, are now few and far between. This, no doubt, is inevitable in the present state of things, but it is rather saddening to old stagers, and it cannot, I think, be gainsaid that the higher class of gardens in this country, from the fall of the leaf to early spring, are not so interesting as they were in those earlier times. But there it is! men and materials cost more nowadays, and there is less money to spend on them. The love of gardens and gardening is as keen as, perhaps keener, than ever it was, so it has to be gratified at a lesser outlay. Thus hardy trees and shrubs, herbaceous plants and alpines have come to dominate the situation as they never did before.

Mr. Eley, in his new book,* has set out to help the garden maker and the garden lover under the circumstances of these post-war days, and there is no doubt he has succeeded admirably in his task. Anyone who contemplates the making of a new garden, or the renovation or reconstruction of an old one, cannot do better than begin by studying this book. The author knows what garden making is and what it means, and his book undoubtedly owes much of its value to its being based on his own experience. He admits he has made mistakes, and in that there is wisdom, for after all, what is learned from a mistake may often be nearly or quite as valuable as what has accrued from a success. But if we can find out what to avoid from this book, still more do we learn what to do and what to plant. Besides being a charming dissertation on the art of gardening, the book is full of sound information There are, for instance, some one hundred and fifty pages devoted to the selection, description and uses to which they may be put of the very best hardy trees and shrubs. A genuinely selective list of trees and shrubs is, for all but experts, absolutely necessary in these days when, in respect of them, we are distinctly embarrassed with riches. There are chapters on the planting and upkeep of garden hedges and on the best trees for shade and shelter—all very important matters for consideration when beginning a garden. Then such subjects are dealt with as avenues (a very excellent three or four-page essay), formal gardens, grafting, pruning, grouping, weeping and fastigiate trees. All these, as well as many others, are treated in a manner combining valuable information with a captivating style which only few authors on gardening have been able to achieve so successfully. Mr. Eley tells us his book is intended to bridge the gap which exists between the most simple garden books and those designed for people well advanced in horticulture; but so pleasantly is it written, so enlivened by shrewd humour, that all who have any interest at all in its subject will enjoy its pages. *B.*

A Home Vegetable Garden.

THIS American work on vegetables† forms one of a series known as "The Open Country Books," edited by Prof. L. H. Bailey. It is intended for amateurs, who are far less numerous in America than in this country, chiefly, we understand, because of the shorter evenings in America than here. The first chapters tell in an alluring style of the pleasure and profits of gardening, the author's own experience showing a profit of $73.60 for an outlay of $11.61. The book then proceeds to deal with soils and soil improvement and sound advice is given on these matters. In preparing poultry manure for use the author recommends the addition of a little acid phosphate, which she states helps to retain the ammonia present in a non-volatile form. In sowing seeds that are likely to be attacked by insect pests the use of tobacco dust in the rows is said to be the best deterrent, and later will furnish the plant with food. The material, however, is difficult to obtain in this country and our old-fashioned remedies of coating large seeds with red lead and putting sawdust mixed with paraffin in the rows of smaller seeds, may be recommended to American growers when they are unable to obtain tobacco dust. The author refers to the value of fertilisers in furnishing heat to growing seedlings, but we doubt if the effect would be appreciable. Much more useful is the advice to make the seed bed firm, to bring the particles of soil into close contact with each other, and thus ensure the seeds getting sufficient moisture for germination. We cannot agree that "the ideal watering equipment for a garden is the overhead system."

The crops dealt with are Asparagus, Beans, Beets and Chard (Seakale Beet), Brussels Sprouts, Cabbage, Carrots, Cauliflowers, Celery, Sweet Corn, Cress, Cucumbers, Pumpkins, Melons and Squashes, Lettuce, Endive, Witloef and Corn Salad, Onions, Chives, Parsnips, Salsafy, Peas, Potatos, Radishes, Spinach, Tomatos and Egg plants. Cabbages are kept through the winter in America like Potatos in a pit. The trench is dug one foot deep, and four feet wide. The heads must be perfectly dry and the roots and stems are left on, the former with all the soil possible. "The heavy, outside leaves, wrapped closely together above the head, will in themselves preserve the freshness of the heart of the Cabbage Cover with straw and over the straw covering place a scattering of earth." More soil is added as the weather gets colder until there is generally a foot of earth over the Cabbage pit.

Some of the methods of using vegetables in U.S.A. are novel. For Carrot salad the small roots are placed on the heart of a Lettuce, garnished with the feathery tops, salted, and eaten like Radishes

In planting Celery, nipping the tap root is recommended to cause fibrous roots to develop, and this is advanced as the reason for transplanting seedling Celery several times. The author omits to mention the need for removing the basal, auxilliary shoots, although nipping out the tips of the leaves is recommended, and this may help to make the seedling secure from "spot" the spores of which may be present on the juvenile foliage.

ALPINE GARDEN.

ANTIRRHINUM ASARINA AND A. GLUTINOSUM.

ALTHOUGH these two Antirrhinums do not possess the varied and beautiful colours pertaining to the offsprings of A. majus, these Alpine species are interesting plants and deserving of a place in the Alpine or rock garden.

A. Asarina should be planted in well-drained, loamy soil containing plenty of grit, in a warm situation in full sunshine. It is a free-growing plant under favourable conditions, yet impatient of damp, and during the winter should be afforded the protection of a sheet of glass.

The greyish foliage and procumbent growth render it a good plant for a sunny ledge: the somewhat large flowers are white, sometimes tinged with red, and a certain amount of yellow in the tube. The plant commences to flower in June and will continue to do so over a long period; it may be propagated either from cuttings or seeds.

The heavy foliage and almost rampant growth of A. glutinosum gives this species a distinct value for a sunny, sheltered position. This species also is somewhat impatient of damp and may require protection in very wet winters, otherwise it is most easily accommodated and, during the summer and autumn, will produce a profusion of its large white flowers, which are just touched with a suspicion of lemon-yellow in the throat. This species is easily raised from cuttings, and a few plants of both species should be maintained in a cold frame to replace any that may succumb to the vagaries of the winter weather.

A. Asarina was introduced from Southern France so far back as 1699.

IONOPSIDIUM ACAULE.

DURING the present winter the tiny Violet Cress has warranted a fair meed of admiration; from a late sowing on a rocky ledge the little plants are still covered with flowers, notwithstanding the fact that we have here experienced some very severe weather—22° of frost on two occasions and at other times 20°, 18° and 16° respectively. These wintry conditions here scarcely dimmed the beauty of this tiny annual, and sowing an occasional pinch of seed on a half-shaded ledge in the rock garden is well worth the small amount of trouble it entails.

The plant often perpetuates itself from seeds, but never becomes obtrusive: rarely exceeding two inches in height, the miniature violet and white flowers surrounding the pale green foliage are delightful. I. acaule was introduced from Portugal in 1845. *Ralph E. Arnold.*

CAMPANULA STANSFIELDII.

DWARF CAMPANULAS abound for the delectation of the alpine lover and it is ofttimes no easy matter to make a choice among them when only a very few are required. Yet, in picking out, say, a dozen or so, it would be difficult for any one who is acquainted with the race of dwarf species, hybrids and varieties, to omit the exquisite C. Stansfieldii. It is one of the gems of the rock-garden Bellflowers, and is even in place in the front of a border of the choicest hardy plants. It has now been a good many years in cultivation, but its precise parentage is still undetermined, although its appearance now and then among collected Campanulas from the Dolomites suggests that it may be derived from C. tommasiniana and C. waldsteiniana. It is a good plant with its low, creeping carpet of light green leaves and its stems four or five inches high, rising here and there from the mats of foliage, and each carrying in a graceful way a single, drooping, wide-mouthed, lovely, violet bell. It is a charming Bellflower and it has the great virtue of offering no real difficulty in cultivation. It is true that it likes a limy soil, but that is easily arranged by mixing a little old mortar rubbish in the compost if no other calcareous substance is available. It is propagated by division or cuttings and is quite hardy, preferring, I think, semi-shade. *S. Arnott.*

SAXIFRAGA FALDONSIDE.

SAXIFRAGA FALDONSIDE is one of the best of the Kabschia section of Saxifragas, and is certainly more at home in the open air alpine garden than are some others of this class; the neat, spiny tufts are freely covered with the large Primrose-yellow flowers and, as they are not produced quite so early in the year as the flowers of S. Burseriana, they are not so likely to be spoilt by the weather: however, the protection of a sheet of glass will maintain the exquisite blossoms in an undamaged condition.

In an exposed, well-drained position, and with a surfacing of chippings, the plant is quite happy. Ample supplies of moisture should be provided during the summer months, for drought is certainly the cause of a great many casualties among Saxifrages. *R. E. A.*

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* *Gardening for the Twentieth Century.* By Charles Eley, M.A. F.L.S. London: John Murray. P. 236. 16s. net.

† *A Home Vegetable Garden.* By Ella M. Freeman. pp. 214, illustrated. The Macmillan Co., New York. Price, 8s. net.

HARDY FLOWER BORDER.

GYPSOPHILA ACUTIFOLIA.

Gypsophila acutifolia grows about three feet high, has glaucous green, sharp-pointed leaves and medium-sized flowers of a light pink, but produced much more laxly and sparsely than those of G. paniculata. As a border plant it is distinct, though less effective than G. paniculata, and it is much less valuable as a cut flower, although it is often very useful for that purpose. The plant is quite hardy, as I have proved from several years' experience. It may be raised from seeds and will thrive in common loam that is not too heavy in texture. I grew it in exposure to sun, and cannot state how it would thrive in the shade. Seeds may be sown under glass in March or April, or plants may be purchased in March for blooming the same summer. *S. Arnott.*

BULB GARDEN.

SCILLA AMOENA.

I have frequently observed Scilla amoena given as a synonym of S. sibirica, but the two are distinct, and each has its advantages. Scilla sibirica is always popular, either for pots under glass or for the open, and its earliness combined with the beauty of its brilliant blue umbrella-like flowers will always give it a prominent place in gardens. To lovers of the Siberian Squill it has too short a season, and some of these would find Scilla amoena, (true) a little bulb which greatly resembles S. sibirica but flowers later, and so will prolong the season.

The bulbs are not expensive, and they may be planted in pots, if desired, or in the open. If in the open they may either be mixed with S. sibirica so as to prolong the display in one particular spot or planted separately—the preferable plan in the writer's estimation. It seems needless to attempt to describe a plant so nearly alike to the universally known S. sibirica. It is an excellent grower, and I have had it in both sun and shade with satisfactory results. I think it prefers a rather light soil. *S. Arnott.*

ANOMATHECA CRUENTA.

This is a South African Irid which, in the company of the Ixia and Sparaxis, makes the herbage so gay and beautiful in that fortunate country. After a long rest, spring comes at once with the first warm rains, and thousands of these plants start into life with a rapidity of growth unknown in our own land. Anomatheca cruenta, to which I draw well-merited attention, does not appear to be so well-known as its beauty demands and, although it was once commonly grown here, its cultivation has now greatly fallen off. I do not know why, but I suppose these little gems have had their day. There are two varieties available, A. cruenta with red flowers, and A. c. alba with white ones, but I am concerned only with the former in these notes, as I have not had any experience of the white form.

A. cruenta is sometimes called the scarlet Freesia, which is quite a misnomer and not at all a suitable name as a comparison will readily show. The growth is from a corm, said to be half-hardy, but here on the clay, in a south-eastern London suburb, there is no question of its hardiness in an ordinary winter, for year after year it pushes through the earth as strongly as ever. The plant grows six inches or eight inches high, with thin, narrow foliage, and about June the bright crimson flowers, which have a much darker cone in the centre, open in succession. The most suitable soil appears to be a rich sandy loam with a generous addition of leaf mould, and in this the plants will do well. If they are put in in January, about two inches deep and an inch apart, in a sunny, well-drained quarter, success may be reasonably anticipated.

The quickest method of raising stock is from seedlings. An inspection of the plants towards autumn will reveal a number of ripe capsules bursting open and disclosing the red seeds within. If these seeds are collected and sown either at once or in the spring and just covered with a little sandy soil, nearly all will germinate and, as with me, the seedlings should all flower the succeeding year. In fact, it is hardly necessary to take this precaution, for I have many self-sown seedlings which thrive despite the want of attention.

A trial of this easily-grown plant will prove eminently satisfactory, as it is such a hardy little thing and simply asks to be left alone. I have specimens growing in my garden close by a clump of Epimedium, and when the brilliant scarlet blooms are intermingled with the richly coloured variegated leaves of the Epimedium, a somewhat unusual and happy combination is created. *T. D. T.*

MARKET FRUIT GARDEN.

There were only two days during December, 1923, when the ground was fit for planting. At other times it was either soaked with rain or sticky after frost. The rainfall for the month was 3.52 inches, which is not excessive for December; but it was enough to keep the already sodden soil in a wet condition. Thus an opportunity for the bulk of the planting must be found in the next two months. On the two days when the ground was workable, about two acres were planted with Gooseberry bushes, the varieties being Whitesmith and Careless. It was hoped the Gooseberries would be a safe crop for a position which is overrun with rabbits from a neighbour's ground; but this proved to be wrong. Rabbits immediately started to gnaw off the shoots. The bushes have now been sprayed with a strong-smelling wash containing chlor-cresol, in the hope that this will deter the rabbits. In the ordinary way, these pests would probably leave the spiny Gooseberries alone, but this winter they are unusually troublesome. The cold, wet weather is having one good result in keeping weeds in check. There are plenty of them, but they are remaining short instead of growing right through the winter as they have done in recent years. They will be easily dealt with if an opportunity for cultivation occurs in early spring.

The Past Year.

Few fruit-growers will regret the passing of 1923. It was a thoroughly bad year for fruit, owing chiefly to the cold spring and the exceptional prevalence of insect pests. In my case it was certainly one of the worst seasons I have known. Whilst growers in some districts complained of drought, with me it was a thoroughly wet year. The rainfall for the twelve months amounted to 36·71 inches, which fell on 179 days. This makes it the wettest year experienced in my district since 1903. The effect on the Apple crop in particular was very serious, much of the fruit being small for want of warmth and sunshine, whilst efficient control of scab was impossible. The yield was little more than one-third that of the previous year, when the quality also was vastly superior. It was, moreover, the best-selling varieties which suffered most, Beauty of Bath, Cox's Orange Pippin, and Worcester Pearmain being very scarce. In 1922 I sold 1,224 half-sieves of Cox's Orange Pippin, whereas last year I had only 76. The only Apples which yielded better than in 1922 were cheap cooking varieties: Lord Grosvenor, Royal Jubilee, Norfolk Beauty, Warner's King and Lane's Prince Albert. Plums also gave only about a third of the previous year's crop, and Cob-nuts only a tenth. Compensating high prices were seldom forthcoming, owing to exceptional imports and a demand discouraged by cold weather and general bad trade conditions. Thus 1923 must go down in the records as a thoroughly bad year for English fruit-growers.

Less Apple Canker.

I have mentioned in previous notes the welcome freedom of Apple wood from scab this winter. The same thing can be said about canker. Very little of this is to be found during pruning operations, even on Cox's Orange Pippin and Worcester Pearmain, which usually give a lot of work. I do not know whether constant rain washed the spores of scab and canker off the shoots, or whether the result may be attributed to spraying, either with copper sulphate in winter or, which is more likely, with Bordeaux mixture in summer. For two years now I have used Bordeaux mixture in place of lime-sulphur in summer, certainly with better results against scab, and quite probably against canker. It has been found at East Malling that summer spraying with this fungicide reduces the number of canker wounds caused by infection through birds.

Market Apples.

Perhaps I deserved Mr. W. J. Farmer's kindly criticism (December 15) when I made such a strong point of colour in Market Apples. He is quite right in saying that some of the imported varieties are popular in spite of lack of colour. Newtown Pippin is an example. Yet the best-flavoured of our own mid-season Apples, James Grieve, is not easy to sell at a good price because of its yellow colour. What it comes to is this, I suppose: There is a limited demand amongst the discriminating few for Apples of good quality, regardless of their colour; but for selling to the multitude in bulk we want highly-coloured fruit. If we can combine quality with colour, so much the better. I fully agree with Mr Farmer's high opinion of Bleinheim Pippin, and I think it a pity that so few growers plant it now, owing to its being slow in coming into bearing. On my light soil, and grafted on Paradise Stock, I do not find it any slower than the popular Bramley's Seedling and Newton Wonder, provided that it is pruned very lightly and short spurring is strictly avoided. On light land it colours well; and I find the local demand so good that I have planted it again in recent years. I can never understand why Blenheim Pippin appears in Covent Garden in bushel baskets and is sold as a cooking Apple at a price little above that of Bramley's Seedling. Where it has to be sold like that it can hardly be worth growing. Our cooking Apples are satisfactory, but we do want some better dessert varieties, bred expressly for market culture. Plant-breeders have done such wonderful things in recent times that they can surely give us a few dessert Apples which would combine flavour with colour, and at the same time crop well and be resistant to scab.

The best of the imported boxed Apples come from dry areas where scab is more easily controlled than in our moist climate. But we have some varieties which are not troubled by scab, and it is only reasonable to suppose that others could be bred with the same immunity to this worst of diseases. Of our market dessert varieties, Allington Pippin, King of the Pippins, Cox's Orange Pippin, Worcester Pearmain, Devonshire Quarrenden, and James Grieve are all disfigured with scab in a wet season, and it is only partially controlled by spraying.

Ploughing in Orchards.

I am leaving the ploughing of my orchards until early spring. It has generally been done in autumn or early winter, and it remains to be seen which answers best. If ploughed in autumn, the land certainly lies drier during the winter; but, if there is much rain, it gets trodden down during pruning and spraying operations and cannot be cultivated until it has been ploughed a second time in spring, and this brings to the surface any manure ploughed under the first time. If ploughing is delayed until spring, the land generally carries a cover crop of weeds all the winter. This is unsightly, but it must prevent the washing out of a good deal of plant food, which is returned to the soil in organic form when the weeds are eventually ploughed under. The weeds represent a cover crop obtained without expense, and are recognised as such by American growers. In pre-war days, when orchards were forked over by piecework, it was necessary to carry on with this work all the winter in order to get it done; but ploughing is soon finished, so one is free to choose the best time for it. Ploughing must, of course, be very shallow, four inches being the limit if damage to roots is to be avoided. It is easily done with one of the several patterns of plantation ploughs now on the market, which can be off-set to enable it to work under the branches. Ploughing should be done towards the trees one year, the narrow strip on which the tree rows actually stand being forked over first. The next year it can be done away from the trees and the rows dug afterwards. In this way the land is kept fairly level. In my case, there are no strips to dig in the older orchards, as they are left as strips of grass to be mown in summer and left as a mulch. *Market Grower.*

FRUIT REGISTER.

APPLE RED VICTORIA.

This culinary Apple has merit, and is, without doubt, one of the most brilliantly coloured of commercial varieties. The fruit is a glowing crimson colour, of large size, and possesses excellent cooking qualities. The season of this variety is August and September. The tree is vigorous in growth, and forms fruit spurs close to the branches. Grown as a bush, its fruiting is most precocious. The late Mr. Ted Miller kindly sent me a feathered maiden tree, which commenced to fruit the third year after planting, and it has borne a crop more or less each succeeding year, the tree being now about nine years of age. I have not seen standards of this variety fruiting, but I see no reason why it should not be equally as fruitful in that form of training as a bush or espalier. The fruits are so highly coloured as to suggest a first-rate dessert variety, and the perfume is very pronounced. It is, however, a culinary sort with the Dumelow's Seedling's (Wellington) qualities. The fruits are somewhat covered by the large foliage which this tree carries, and the shade probably adds to the intense coloration; the finest coloured Apples I ever saw were enclosed in two muslin bags, and also protected with a net of tiffany, thus clearly proving that the direct rays of the sun are not so conducive to intense colouring as many presume. *Pomona.*

HOME CORRESPONDENCE.

Lapageria rosea.—In the note on this beautiful climber (p. 368, vol. lxxiv) *W. A.* states that it is eminently suitable for the cool greenhouse, and that it resents fire heat and will withstand a few degrees of frost under dry conditions. The greenhouse, under general conditions, is about the last place to see Lapagerias in good order. The plant was, as our correspondent observes, introduced from Chili in 1847, and, like that of many other native plants of that country, its hardiness is greater than is supposed. Greenhouse conditions, as a rule, are too arid for it and it seldom gets the shade which it requires. I know of a plant that was put in twenty years ago against a house gable facing east, and in this exposure, and without protection, it has covered the space at its disposal. The plant seems to revel in the cool conditions under which it is growing, and the foliage is always healthy. Lovers of this fine climber would do well to give it a trial on a shaded wall in the open. I am convinced they will find that it is as hardy as Tropaeolum speciosum. *George M. Taylor, Edinburgh.*

Rainfall at Westonbirt, during 1923.—The total rainfall at Westonbirt Gardens, Tetbury, Gloucestershire, during the past year amounted to 38·71 inches. The monthly totals were as follow: January, 2·44 inches; February, 7·04; March, 2·43; April, 3·25; May, 2·19; June, 0·46; July, 1·96; August, 3·55; September, 3·11; October, 5·69; November, 2·52; December, 4·07; giving a grand total of 38·71 inches. The average yearly fall based on records of the past 40 years is 34·89 inches. The lowest record for one full year of the period under review was that of 23·16 inches for 1921, the next lowest being 24·17 during 1890, which is run very closely by 24·89, the amount registered in 1887. The heaviest fall in a single year was 50.24 inches during 1912. *F. J. C.*

Two British Gentians.—It has often occurred to me that two of the rare British Gentians could be grown in short turfy grass in gardens, particularly those of a chalky nature. Patches of soil might even be prepared for them in connection with rockeries, where the soil could be mixed with chalk and turfed or sown down with grass. Dry conditions suit both of them. One of them is often written as G. lingulata, C. A. Agardh, var. præcox. The type here given is not British, and I am of opinion that the plant in question is only a variety of G. Amarella, differing by being only two to three inches high, and flowering in May and June, instead of in July to September. The purplish blue flowers are rather large for the plant, which I have seen growing plentifully on the downs near Swanage. The other plant is G. germanica, with much larger flowers, and a stouter plant altogether than G. Amarella, with showy blue purple flowers, and occurring in several of the southern counties of England and Wales. *J. F.*

Hardiness of Veronicas.—In answer to Mr. Richardson's letter on page 12, I cannot, of course, tell which Veronicas the late Mr. Brotherston (whose loss all your readers must deplore) would have selected as the hardiest on the East Coast. All I can state is that no member of the genus is truly hardy at Aldenham, in the sense that Box, Holly and Yew are; but hardiness is purely a relative term, and none of these three last named can survive the winters of N. America. I believe V. Traversi is the hardiest of the Veronicas, but this, and every other, every Olearia, and every plant claiming New Zealand as its habitat, were killed, not merely to the ground, but stone dead, at Aldenham during the cruel frost which began in January, 189[illegible], when for a few hours the glass registered 3° below zero. The explanation of V. salicifolia being found hardy in Ayrshire and tender in East Lothian may be that in the former locality the soil suits it perfectly, and it is consequently vigorous, and therefore better able to resist extreme cold. In my experience I have never visited any large collection without finding some surprises, that is to say, though certain shrubs could not withstand the winters, others generally regarded as more tender flourished well. This is certainly the case here. *Vicary Gibbs, Aldenham.*

Obituary.

Francis Faint.—We regret to record the death of Mr. Francis Faint, of Newmarket, who passed away on the 29th ult., at the age of seventy-three At one time Mr. Faint was head gardener to the late Sir S. Hoare, Sidestrand Hall, Cromer, and served in that capacity to the late R. Hoare, Esq., Marden Hall, Hertford, which position he held for twenty years. He was a very capable grower and gained many successes with exhibits of Grapes and vegetables. He is survived by a widow, two daughters, and one son.

Hannah Mitchison.—It is with regret we record the death of Mrs. Hannah Mitchison, wife of Mr. George Bolton Mitchison, on the 31st ult., at the age of 76 years. It will be recalled by many of our readers that Mr. George B. Mitchison has been actively engaged in horticultural pursuits all his life and has held many responsible positions, including a long term of service with Lord Calthorpe, at Perry Hall, Birmingham.

ANSWERS TO CORRESPONDENTS.

Cauliflowers under Glass: *J. F.* We see no reason why you should not succeed with this crop, although its cultivation under the conditions you state will require a certain amount of skill and tact. Your system approaches that employed by French market growers, who cultivate their first crops on a hot-bed under frames. The soil should be kept fairly moist and excessive temperature guarded against, otherwise the growth will be rank and the heads fail to form. The plants should be grown as near the glass as possible. A concentrated fertilizer, such as Clay's or Bull's, may be employed with advantage.

Codiaeum Shedding Foliage: *M. A. A* We attribute the premature leaf fall of the Codiaeums to excessive watering and to sudden changes of temperature. To succeed with this plant it is necessary that a night temperature of 70° to 75° be maintained and that the air be kept moist by frequent syringings.

Diseased Pelargoniums: *O. W.* The plants are attacked by the grey "mould" Botrytis. Cut off and burn all dead or dying parts of the plants and dust flowers of sulphur over the affected plants.

Fungus for Identification: *C E. B.* The name of the fungus is Stereum purpureum. All diseased branches should be removed and burned at once.

Fungus on Peach: *J. S.* The Peach shoots are suffering from an attack by the fungus Cladsporium carpophilum (Fusicladium Cerasi). The disease is very common in America, causing the well-known Peach scab. As a rule it shows itself as numerous small, sooty spots on the fruits, though it sometimes covers the whole surface. Spots are also found at times on the leaves, the affected parts often falling out and giving a shot-hole effect. When the twigs are affected, the fungus perennates in brown or purplish-brown spots and breaks through the cuticle from the layers below and its hyphae project through the cracks. The treatment suggested is spraying with Bordeaux mixture containing a little soap. The dead shoots and twigs should be removed and burnt without delay.

Mushrooms: *W. T. W.* The specimens of Mushrooms are affected with a parasitic fungus (Verticillium), and its presence is no doubt the cause of their toughness. The spawn may also be affected with this disease. The beds should be sprayed with a 2½% solution of lysol.

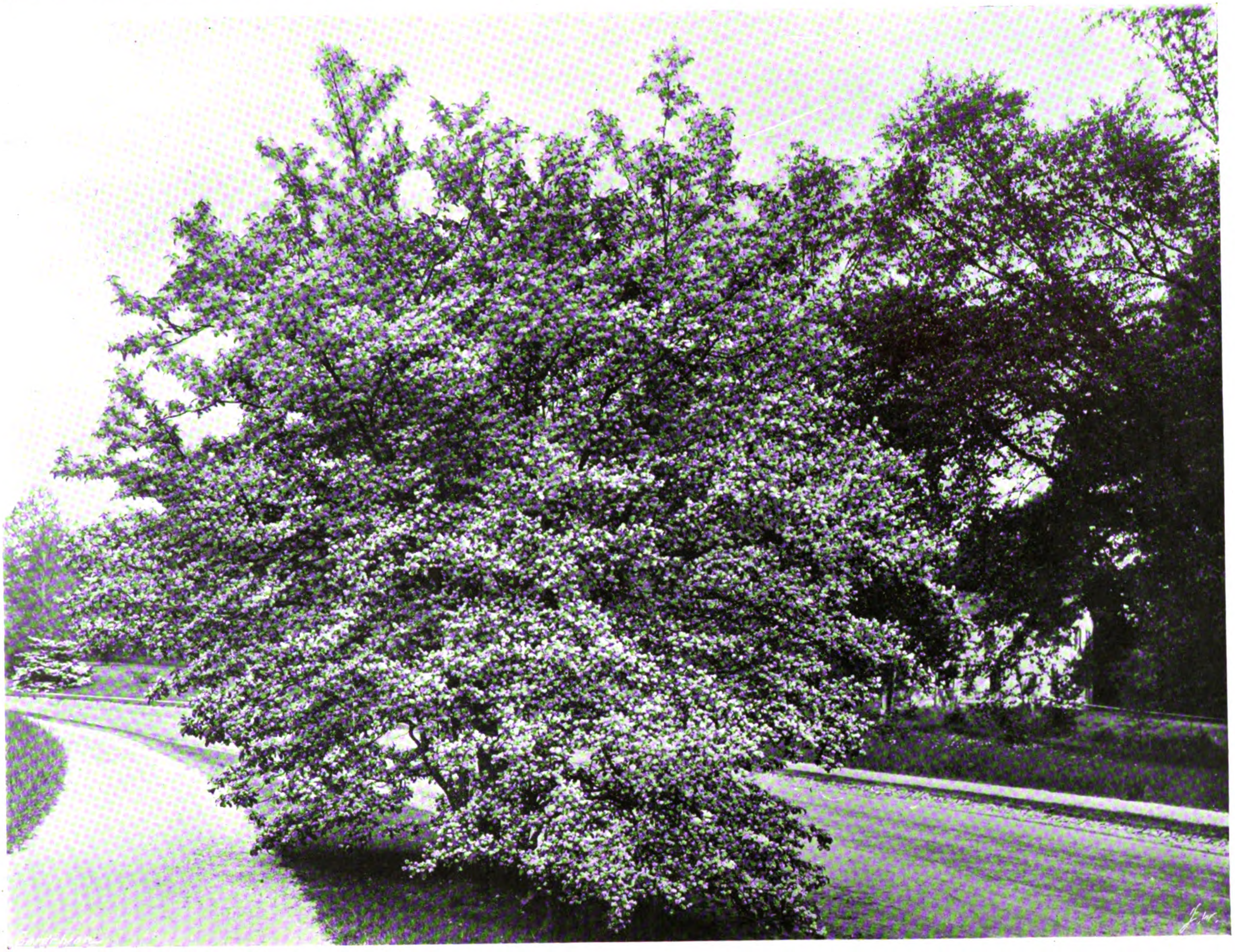
Mushroom Culture: *G. C. A.* We know of no pamphlet dealing with the cultivation of this crop. There is, however, a handbook on *Mushroom Culture* by W. Dyke, and this may be obtained from our Publishing Department, 5, Tavistock Street, W.C. 2; the price is 1s. 2d. post free.

Name of Plants: *J. N. M.* It is not possible for us to determine the name of the shrub; send when in flower.

Postal Training in Horticulture: *E. M. S.* We advise you to write to Messrs. Penningtons, Ltd., 254, Oxford Road, Manchester. This firm gives postal training in horticulture and prepares students for the principal examinations in this subject.

Propagation of Privet: *F. W.* Cuttings should be made from mid-July to the end of August. In most seasons they will root out-of-doors, but it is safer to root them in a frame with a little bottom heat.

Violet Rust: *J. M.* This disease may be kept under control by removing affected leaves and by dusting the plants with flowers of sulphur about once every three weeks. It is important that runners and divisions should be taken from healthy plants.



SYMPLOCOS PANICULATA, THE SAPPHIRE BERRY, FLOWERING IN THE ARNOLD ARBORETUM.

THE

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.6°.

Actual Temperature:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 16, 10 a.m.: Bar, 29.6; temp. 41°. Weather—Slight Fog.

Development Commissioners' Report for 1922-3.

In reviewing the assistance given to agricultural research and education by the Development Commissioners in 1922–3, we find chief importance, as in the past, has been given to those schemes which have aimed at the establishment of systems of research and education adapted to meet the needs of agriculturists and horticulturists, and in providing facilities for the training of instructors. The advances—according to The Report of the Development Commissioners for 1922–3[*]—recommended during the year amounted to £511,577, as compared with £368,450 in the previous year. The increase is due to the fact that under the Corn Production (Repeal) Acts, 1921, a special grant of £850,000 was paid into the Development Fund for agricultural development in England and Wales, by way of compensation to the agricultural community for the discontinuance of the guarantee for Corn growing. The chief purposes for which the grants and loans are given are classified under the following headings:—(1) The maintenance of a number of institutions for carrying out scientific investigation. Aid in building and equipping research stations is also given, usually on the £ for £ principle; (2) Maintenance of the consultative staff, known as the Advisory Service; (3) Special research grants made to individual research workers to provide them with skilled assistance, or with the equipment necessary for their work; and (4) Fellowships given to members of the staff of the Research and Advisory Services to enable them to travel and study methods adopted by other scientific workers. Scholarships are also awarded to promising young graduates to help them to acquire some training in research methods. The sums recommended by the Commissioners to the Institution or Association undertaking the work for which the grant is made, are either transmitted through the Ministry of Agriculture and Fisheries in England and Wales and the Board of Agriculture in Scotland, or the grant, on the recommendation of the Commissioners, may be made direct to the Agricultural Departments themselves. This is the usual method of making advances, and out of a total of £367,705 recommended for purposes of research and education in England and Wales, grants of about £336,325 were made direct to the Ministry of Agriculture, whilst in Scotland grants of £18,395 out of a total of £29,365 were made to the Scottish Board of Agriculture. The total sum recommended as grants to the Ministry for the maintenance of work of Institutes and Stations in England and Wales was £91,508 as against £70,635 in the previous year. The grants in respect of capital expenditure and equipment of Institutes amounted to £76,225. It is interesting to record that grants made through the Ministry include £2,410 for research on Silver-Leaf Disease at Cambridge; cost of production of diagrams illustrating insect and fungous pests inimical to food production, £1,750; development of the work of the Long Ashton Fruit Research Station, £5,000; cost of new Plant Pathological Laboratory and Insectary at the Rothamsted Experimental Station, £21,135; erection and equipment of glass-houses at the Waltham Cross Experimental and Research Station, £1,125; experimental and educational work to be carried out by the University of Bristol at the Vegetable Drying and Fruit Preserving Factory at Chipping Campden, £7,500; scheme for establishing scholarships and maintenance allowances for the sons and daughters of agricultural workers and others, £10,000 for the year 1922–3, and £20,000 for the year 1923–4; and a scheme for testing commercial varieties of fruit trees at Wisley—details of which have already been published in the *Gardeners' Chronicle*—£345. The sum of £1,135 was allocated to the Imperial College of Science and Technology for electro-culture experiments during 1923, and a grant of £1,070 was made to the Aberdeen and North of Scotland College of Agriculture in aid of research work on soils and drainage. The Kent Incorporated Society for Promoting Experiments in Horticulture received a grant of £6,600 in aid of capital expenditure required for the East Malling Research Station; this grant includes the sum of £2,500 advanced as a loan in December, 1921, and now converted into a grant. The Swanley Horticultural College received the sum of £1,500, being half the cost of improvements to the laboratory and dairy, and the sum of £3,500 has been loaned to this institution to replace part of present mortgages on the College property. The grant made to the Seed Testing Station of the National Institute of Agricultural Botany amounts to £5,645, and in addition the loan of £5,621 made in 1919 is now treated as a grant. The Agricultural Organisation Society received the sum of £4,556 in aid of its work during 1922–3. From 1919–23 this Society has received £80,143 from the Development Fund, but it has been agreed that no further applications are to be made after the year 1922–3. Brief notes are given on the work of those Research Institutes and Stations aided by grants, and a list of the publications appended indicates the wide scope of the subjects under investigation. Research workers, other than those regularly employed at research institutes, have received assistance to conduct investigations on subjects of agricultural and horticultural importance; the main subjects which have received attention include soil bacteriology; biology of wireworms and weevils (School of Agriculture, Cambridge); research in the composition of Oat straw (Armstrong College, Newcastle); insect fauna of crops (East Anglican Institute of Agriculture, Chelmsford); immunity of fruit stocks to insects, Wart disease of Potatos, Gooseberry disease (Imperial College of Science); fertilising effect of carbon-di-oxide (Experimental Station, Cheshunt); and wild White Clover investigations, Crown-gall disease of fruit trees, and insect pests of Turnips (South-Eastern Agricultural College, Wye).

Interesting Greenhouse Plants at Kew.—A charming effect is obtained in the conservatory at Kew by the massing of pot grown plants of Strobilanthes isophyllus. This is by no means a new plant but is deserving of greater popularity. Given restricted root room it makes a fine, free-flowering, bushy plant. The bluish-metallic foliage is in itself a sufficient recommendation for this species amongst decorative plants, and the deep tint of the leaves seems to be heightened in tone by the pale lavender-blue colour of the tubular flowers. An effective arrangement is made by using plants of Strobilanthes isophyllus in combination with Lindenbergia grandiflora, the yellow flowers and green foliage of the latter making a pleasing contrast. The blue-flowered Tibouchina semidecandra is also represented by a batch of pot-grown specimens. This species is usually grown as a large plant for clothing the sides and rafters of the greenhouse, but when allowed to grow at random the flowers are not produced in abundance. It is easily raised from cuttings of the half-ripened shoots in the spring and with due attention to keeping the new growths well pinched back good specimens may be obtained in two years. The flowers on pot plants are not so large as those obtained from planted-out specimens, but they appear to last much longer and render the plant attractive for a few months.

Farm Fruit Trees.—Returns compiled by the Ministry of Agriculture of the acreage of crops, etc., in 1923, shows that the number of orchard trees on agricultural holdings in England and Wales is 22,000,000.

Dearer Vegetables.—Most of the winter green vegetables have risen considerably in value during the past few weeks. Brussels Sprouts are averaging 11s. 6d. per pot (56 lb.), and other green crops, including Cabbages and Savoys, have become decidedly dearer. Celery also has advanced in value whilst Potatos have gone up 5s. per ton for all varieties since the last agricultural market returns were issued by the Ministry of Agriculture and Fisheries a fortnight ago. King Edward variety which is one of the most popular market sorts, is now averaging nearly £9 10s. per ton and Majestic £8 per ton.

A Successful Show.—The annual show of the Bishop's Stortford Horticultural Society held on August Bank Holiday 1923 resulted in a profit of £112 10s. 1d., compared with a loss of £65 11s. 4d. in the preceding year. The exhibition last August was attended by upwards of eight thousand people. The success of the show may be judged by the fact that the profit remained after a sum of £71 13s 0d. had been paid for entertainment tax. Owing chiefly to the success which attended this exhibition, the Society has now a credit balance of nearly £30, compared with under £2 in 1922. At the annual meeting held recently Mr. Barrett was elected chairman in succession to Mr. T. Gilbey. Mr. Barrett has been associated with the Society for the past forty years. The exhibition this year will be held on August Bank Holiday at Silver Leys.

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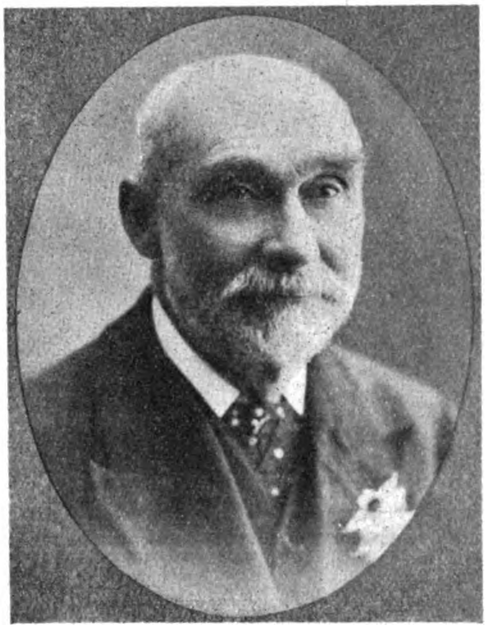
[*] *Thirteenth Report of the Development Commissioners, for the year ended the 31st March, 1923.* Price 4s. net., postage extra; H.M. Stationery Office, Imperial House, Kingsway, London, W.C. 2.

The Palm Garden of Frankfurt.—It would appear that all efforts to save the Palm Garden in Frankfurt have been in vain, and, the garden is doomed, unless at the eleventh hour a generous offer of support is made. Only fifteen gardeners are now employed there, and had it not been for the late mild weather, irreparable damage would already have been done to the plants. The state subsidy which was granted some time ago is exhausted, owing to the rapid fall in the currency during the past few months, and now, as a last resort, an appeal is being made to interested private people, in the hope that enough money may be raised to place the finances on a sound basis again. It would be a thousand pities if this celebrated Palm garden were destroyed, after being built up and maintained with so much care and expense, and its disappearance would be a loss, not only to German horticulturists, but to garden-lovers all over the world.

The Hortus Floridus of Crispijn vande Pas the Younger.—In a very interesting thirty-page brochure, Mr. S. Savage points out that the main object of his treatise* is to explain why copies of the *Hortus Floridus* show so many differences, both in texts and illustrations The work in question is of value as being the most successful of the seventeenth-century books of plant engravings; it is oblong-quarto and contains from 175 to 200 pages, according to the copy selected. Crispijn vande Pas the Younger, according to Wurzbach, was born in Cologne in 1589, and if this date is correct he was twenty-five years of age when the *Hortus Floridus* was first issued in 1614; he died in Amsterdam in 1667. Franken (1881) detailed six editions of the work, and there are references to it in the *Gardeners' Chronicle* of 1885 and 1886 by F. W. Burbidge and J. H. Krelage. Mr. Savage suggests that the several "states" or "editions" of *Hortus Floridus* were due to the fact that a book produced partly by the engraver and partly by the printer presented considerable difficulties, and some confusion arose. Moreover, he presumes that when the stock of complete sets of the printed texts became exhausted, there was still a demand for the book; but instead of the texts being reset and the work carried on as before, it is found that copies were issued with the Dutch, French and English texts, without the Latin texts. It was at this stage that the early stock of plates before numbers and in early "states," printed when the plates were first engraved, but which could not be used for copies with Latin texts, was drawn upon. Thus in such copies there is to be found a surprising mixture of plate-states. Twelve extra plates of Tulips were now added to the "Spring" section and, in some copies, four pages of text (in two separate versions, Dutch and French) with a plate, referring to the culture of Tulips. Later copies of the additional Tulip plates, without descriptions, were added to the remaining odd copies of "Spring" with texts, and included with other oddments to make up copies of the book. Further, a few very disorderly and imperfect copies representing the last remaining leaves of the old stock were put together and issued. Towards the end of his account Mr Savage details the differences of the four "states" or editions of *Hortus Floridus* and the several variations of each "state." Lovers of old gardening literature will find much pleasure and interest in Mr. Savage's painstaking effort to clear up a bibliographical mystery.

Mr. James O'Brien, V.M.H.—On the occasion of his retirement from the Honorary Secretaryship of the Orchid Committee of the Royal Horticultural Society, the members of that body showed their appreciation of the long and able services he has rendered by presenting him with an inscribed and framed address and a cheque for £130. The presentation was made by Sir Jeremiah Colman, chairman of the Committee, on Tuesday last, who in a few well chosen words indicated the high esteem in which Mr. O'Brien is held by his colleagues. Sir Jeremiah also referred to Mr. O'Brien's great services to horticulture in general, as well as to Orchidology in particular, and to his interest in local affairs and church matters at Harrow. Sir Harry J. Veitch, Sir George Holford and Sir F. W. Moore, who were unable to be present, wrote in high appreciation of Mr. O'Brien's many good qualities. It is not necessary to give details of Mr. O'Brien's horticultural history, as these appeared in our issue of August 26 1922. We congratulate Mr. O'Brien upon the receipt of such a tangible proof of the love and esteem of those who have served with him for many years and we add our personal appreciation, with that of our readers, of the splendid service he has rendered to horticulture by his contributions in *The Gardeners' Chronicle* for more than twenty-five years. We append the text of the address which was presented with the cheque:—"We, members of the Orchid Committee of the Royal Horticultural Society, offer you our sincere good wishes on the occasion of your regretted retirement from the Secretaryship of our Committee, which you have held continuously for a period of thirty-four years, since its foundation in 1889. We wish to record our appreciation of your zealous and signal services in the interests of the history, study, and science of Orchidology, and of horticulture generally. Your unfailing courtesy and ready assistance have won our affectionate regard. We ask your acceptance of the accompanying gift and pray that you may frequently attend our meetings. January, 1924:—Sir Jeremiah Colman, Chairman; Lt.-Col. Sir George Holford, Sir Harry J. Veitch, Vice-Chairmen; J. Gurney Wilson, Secretary: H. G. Alexander, T. Armstrong, E. R. Ashton, R. Brooman White, Clive Cookson, John E. Cowan, Chas. H. Curtis, John Cypher, V.M.H., Arthur Dye, S. W. Flory, F. W. Hanbury, W. H. Hatcher, W. J. Kaye, Stuart H. Low, C. J. Lucas, A. McBean, Hon. Henry D. McLaren, Sir F. W. Moore, G. F. Moore, H. T. Pitt, J. W. Potter, Pantia Ralli, F. K. Sander, J. E. Shill, H. H. Smith, Baron Bruno Schröder, Richard G. Thwaites, W. H. White."



MR. JAMES O'BRIEN, V.M.H.

Fruit Conference at Seale-Hayne.—We are informed that a "Fruit Conference" is to be held at the Seale-Hayne Agricultural College, Newton Abbot, on Tuesday, the 22nd inst. Mr. D. R. Edwardes-Ker, M.A., B.Sc., the Principal of the College is to speak on "The Aims of the Conference" and Mr. W. J. Lobjoit, O.B.E., Ministry of Agriculture, will take for his subject, "The Possibilities of Fruit Growing in the West of England." Other papers include "Some Fruit Pests," by Mr. W. E. H. Hodson, D.T.C., A.R.C.S.; "Some Unsolved Problems affecting the Fruit Grower," by Captain R. Wellington, M.C.; and "Orchard Renovation," by Mr. Charles Mackintosh. The subjects are to be freely discussed and the chair will be taken by the Rt. Hon. George Lambert, M.P. The conference will commence at 11 a.m. and is expected to close about 4.30 p.m.

Watsonia Lady Fawkes.—From the *Report* of the Botanic Gardens of New South Wales, we learn that Watsonia Lady Fawkes is one of the finest varieties in cultivation. It was raised by Mr. Charles Weston, at Admiralty House, Sydney, and was awarded the First Class Certificate of the Horticultural Association of New South Wales, on September 9th, 1910. The colour is described as Carthamnus or Lincoln red, or Euphorbia splendens red. The season of blooming extends over three months, not by means of successional plantings, but by a continuity of terminal flowering.

British Mycological Society. — The next meeting of the British Mycological Society is to be held in the Botany Department, University College, Gower Street, W.C. 1, on Saturday, January 19, at 11 a.m. The programme is of great interest and the following papers are to be read:—(1) "Some Observations on 'Stagheaded' Oaks," by Major K. W. Braid, B.Sc.; (2) "Sclerotinia sclerotiorium affecting Antirrhinums via the stigma," by Mr. W. J. Dowson, M.A.; (3) "The Sexuality of Ustilago," by Mr. F. Howarth, B.Sc.; (4) "The Principles of Nomenclature," by Mr. T. A. Sprague, B.Sc.

Awards at Wembley.—We understand that no competitive awards are to be made for exhibits shown at the British Empire Exhibition, and this decision has been adopted by the Board of the Exhibition after taking the views of exhibitors and Overseas Governments. A Commemorative Medal accompanied by a decorative certificate, however, will be awarded to each exhibitor who has rented space in the United Kingdom Section, while Diplomas of Honour will be distributed among exhibitors participating in collective exhibits of products organised by the United Kingdom or Overseas Governments, or in Art and Scientific Research exhibits organised by governments, associations and committees. Arrangements have been made with the railway companies for exhibits to and from Wembley to be carried by goods or passenger train at half-rates at owner's risk.

A Gardeners' Society's Jubilee.—The Tonbridge Gardeners' and Amateurs' Society recently celebrated its jubilee and in honour of the event a dinner was held at the Bull Hotel, Tonbridge. The Society was founded on January 1, 1874, and one of the original members, Mr. W. Dann, now in his seventy-seventh year, was present at the dinner. The president, Mr. F. O. Streeten, occupied the chair. The secretary, Mr. C. H. J. Baldock, in replying to the toast of the Society, stated that since 1891 to the present time the Society had paid £1,042 in prize money and raised £150 for various charities, including £90 for the Gardeners' Royal Benevolent Institution. An interesting function in connection with the proceedings was the presentation of a wallet of treasury notes to Mr. Dann, who, it was stated, had hardly missed a meeting of the Committee for the past twenty years.

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* *The Hortus Floridus of Crispijn vande Pas the Younger*. By S. Savage. Reprinted by the Oxford University Press, London, from the *Transactions* of the Bibliographical Society.

Condition of the Vegetable Crops.—According to the monthly agricultural report of the Ministry of Agriculture, Autumn-planted Cabbages are looking healthy in spite of the inclement weather, which has, however checked growth. Hearting Broccoli is late and not growing well, crops in Lancashire being very poor. Brussels Sprouts are getting scarce, little growth having been made during the month of December and the crop will probably prove to be below average.

Newcastle Horticultural Society.—A glance through the thirty-second Annual Report of the Newcastle and District Horticultural Mutual Improvement Society shows that this society is doing excellent work in furthering interest in horticultural matters in the north. The membership stands at well over two hundred, and the monthly meetings and lectures held during the past year have, we are pleased to learn, received good support. In connection with these meetings, the competitions in flowers and vegetables have been keen, and the general scheme of work for this year is on similar lines. In addition, the society holds a spring show and arranges for its members to visit places of horticultural interest.

Appointments for the Ensuing Week.—Tuesday, January 22: Newcastle and District Horticultural Society's lecture. Wednesday, January 23: Morley and District Paxton Society's meeting; Glasgow and West of Scotland Horticultural Society's meeting; Wimbledon Gardeners' Mutual Improvement Society's meeting. Thursday, January 24: Gardeners' Royal Benevolent Institution's meeting and election at Simpson's Restaurant, at 2.15 p.m.; Royal Botanic Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Mr. Wilmot's, Isleworth.*—It is an undeniable fact that the London market gardens are the best schools to learn the art of kitchen gardening in. In them is practiced not only cultivation of the highest order (as Covent Garden amply illustrates), but it is conducted with a profit to the grower, a circumstance which renders these gardens seminaries of the first importance; for, although in some princely establishments things of unusual excellence may be obtained, yet this is by a combination of expensive appliances, or sometimes by accident, profit, of course, being out of the question. Such is, however, not the case with him who lives by marketing his produce. With the market gardener, all that labour can effect and economy can suggest is now required to compete successfully with the productions of the foreign cultivator, now copiously sent to our markets. This must be evident to every one who has an opportunity of witnessing the vast quantities of fruit and early vegetables which are every year imported; and be it remembered those importations are the produce of the natural soil and climate of the several countries from whence they come, and where labour is at least very much cheaper than that which is employed in our own country. In England, expensive erections and artificial heating are required to obviate the difficulties of our climate, both of which our more southern neighbours can dispense with. These adverse circumstances the British market gardener has to brave; but he does brave them with impunity; and in no establishment in this country is this more successfully accomplished than in the one which heads this notice. Mr. Wilmot has been long known to be one of the first cultivators in this country, and his forcing establishment, in point of extent, is, perhaps, unrivalled. If such an extent as he possesses of horticultural erections was not conducted upon the best principles of management, disorder would soon become apparent, and a reduction in the establishment necessary; but so far from this being the case, Mr. Wilmot is annually adding to it; and by this means he is enabled to prove the value of almost every new mode of cultivation which is propounded for the better management, more especially, of the Pineapple or the Grape, both of which he has made his peculiar study for nearly the last half century. *G., Gard. Chron., January 20, 1849.*

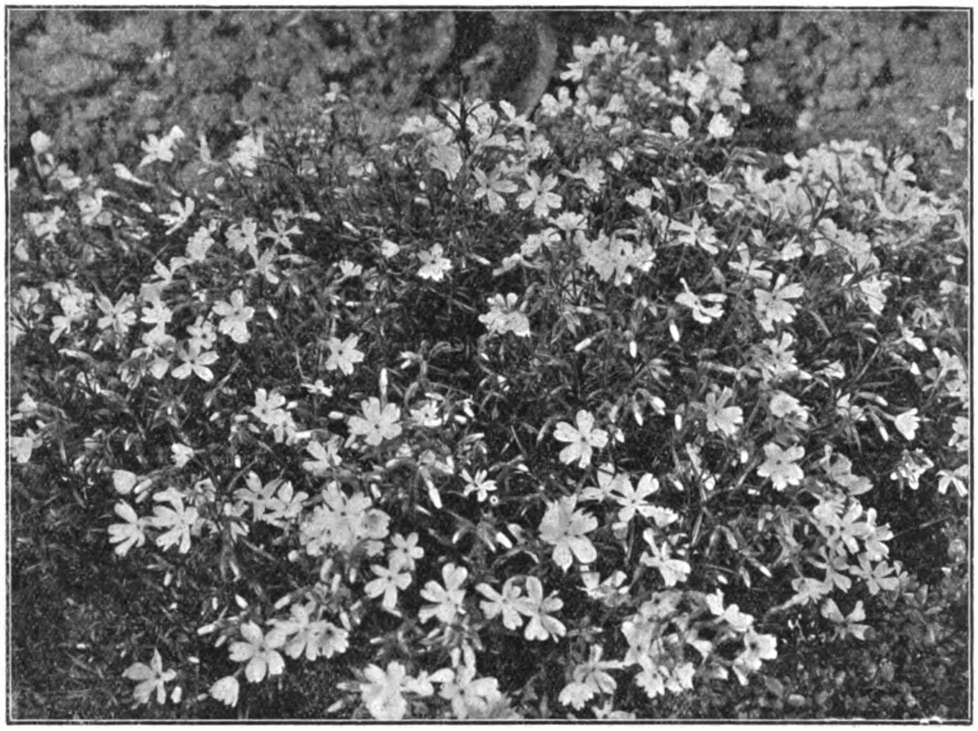

FIG. 12.—PHLOX SUBULATA VAR. LILACINA (SEE P. 38.)

BULB GARDEN.

AGAPANTHUS UMBELLATUS MOOREANUS.

This hardy bulbous plant is an excellent subject for the herbaceous border, certain positions in the rock-garden, and for distant effect in association with Hyacinthus candicans and the varieties of Kniphofia, whose season of flowering synchronise. The rigid, many-flowered scapes of dark blue flowers are freely produced by established clumps, which, in the strong, rich soil necessary for its maximum development, increase rapidly. The variety Mooreanus is dwarfer in habit and hardier than the type, the latter being generally cultivated in pots and tubs for verandah and terrace decoration. *Fred. W. Jeffery, Dalserf.*

CAMASSIA ESCULENTA.

Camassia esculenta was introduced from America in 1827, and like most other members of the genus, is quite hardy. The bulbs of this species are, or were, used as food by some of the American Indians, and the characteristic name indicates this fact. Some bulbs will throw up a flowering spike two feet or three feet high; but others will give a spike only a foot or so high. The flowers are star-shaped, and range in colour from white to light blue, mauve and purple; they appear towards the end of May. The culture of this Liliaceous plant is of the simplest—so simple that it is quite easy to naturalize the bulbs successfully. A sheltered and rather shady situation is suitable, but the bulbs should lie in a well-drained position during the winter. Any good garden soil is suitable, and if too heavy it may be lightened by any of the usual means. Camassias flower best when undisturbed, and the old-fashioned border is the proper place for them. Should a little stimulant be thought necessary a top dressing of old manure may be given in the autumn.

C. esculenta has been productive of many seedlings all bearing attractive flowers of various shades of blue. C. Cusickii is taller and more stately, and has lavender flowers. It does well almost anywhere and is an excellent plant for the bulb garden, and one of the best of the Camassias. C. Leichtlinii is chiefly white or cream and provides a welcome contrast to the blue sorts.

Camassias may be raised from seeds sown when ripe or in the early spring; stock can thus be quickly raised and much interest added to the garden. Propagation may also be effected by offsets which soon reach a flowering size. *T. D. T.*

ALPINE GARDEN.

DIANTHUS GRANITICUS.

Recognised as a distinct species, Dianthus graniticus bears such a strong resemblance to our lovely native Maiden Pink, Dianthus deltoides, that the casual observer would set it down as a variety of the latter. For the purpose of this note it will be sufficient to state that D. graniticus is a glorified Maiden Pink, taller and with better flowers, yet with all the charms which have made D. deltoides so popular. The flowers are small compared with single forms of D. plumarius, for example, but they are not insignificant and a good-sized group of plants presents a charming appearance in the rock garden. Seeds germinate quickly and freely if sown under glass in spring or in the open in May or June. The colour of the typical flowers is a good carmine rose, but, as in the case of D. deltoides, there are also white forms. The habit is semi-trailing, but the stems rarely exceed six or nine inches in length. Although it likes sun, partial shade is not objected to by this pretty Pink, and it grows freely in a light, open soil. *S. Arnott.*

PHORMIUM COOKIANUM.

Phormium Cookianum is by no means so noble a plant as the well-known P. tenax, but, nevertheless, it is well worth a place in the large rock garden or a sheltered border of choice plants. Here, in Gloucestershire, it has proved to be quite hardy, and has flowered freely on several occasions. The loose panicles of conspicuous brownish-red flowers are very persistent and interesting.

Seeds are produced in plenty and provide a ready means of increase, albeit the resulting plants are somewhat slow in growth. During the abnormal summer of 1921, P. Cookianum was a magnificent feature, and evidently it revels in dry conditions. Plants growing in somewhat firm soil flower much better than do those with a deep and rich root-run. *E. A.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Zygopetalum.—Plants of Zygopetalum Mackayi will soon be passing out of flower, and any necessary re-potting is best done when the new growths are a few inches high. This Orchid is impatient of frequent root disturbance, therefore it should only be repotted when the compost is exhausted and the receptacle has become too small to accommodate another season's growth. In order to secure the best results, ample pot-room should be afforded; as a rule a receptacle two sizes larger than the one the plant previously occupied will be suitable. The rooting medium should consist of a mixture of good fibrous loam, Osmunda-fibre, cut into rather small portions, and Sphagnum-moss, with plenty of crushed crocks, and silver-sand added. Only a small amount of drainage material need be used, and a layer of rough compost should be placed over the drainage to ensure a free passage of water. For a few weeks after being disturbed, the plants should be grown in the Cattleya house, but when they are re-established they should be placed in a cool intermediate temperature, and protected from the direct rays of the sun at all times. Established plants should be given plenty of water while they are making their growths. The above remarks also apply to such hybrids as Z. leucochilum, Z. Sedenii, Z. Perrenoudii, and Z. Sanderi.

Laelia pumila.—After this charming little plant has flowered and when fresh root action is evident, it may be repotted or top-dressed. The most suitable compost is coarse Osmunda-fibre, and shallow Orchid pans without side-holes, form the most suitable receptacles. The pans should be suspended about two feet from the roof-glass in a house having an intermediate temperature. The pans should be well drained and only a thin layer of soil is necessary. It is important that water passes away freely, and very little moisture should be given the plant until after the new roots have penetrated the fresh compost.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Primulas.—During recent years many beautiful hardy Primulas have been introduced, chiefly from Western China. Fortunately most of these may be easily raised from seed, though germination is sometimes slow. If seeds are sown at the present time and placed in a cool house, germination will be much more certain than if the sowing is deferred until a later date when the drying winds of spring make it much more difficult to maintain equable conditions of moisture.

Sweet Peas.—The principal sowing of Sweet Peas should be made now. Many prefer to sow the seeds in boxes, and certainly in such receptacles moisture conditions are less difficult to control than when sown in pots. Whichever method is adopted overcrowding should be guarded against, and it is a good practice to accelerate germination by standing the seed pans in a house having an intermediate temperature until the plants appear, after which they should be immediately transferred to a frame and the plants grown on in the coolest conditions possible.

Summer Bedding Plants. — Autumn-struck cuttings which have been wintered in boxes should now be potted. Where space is limited they may be grown on in the fruit houses for a time, but as soon as they are established they should be transferred to airy pits or frames, where sturdy growth will be promoted. Stock plants for the provision of cuttings should be cleansed and placed in warmth, and the propagation of such plants as Fuchsias, Heliotropes, Salvias, Verbenas, etc., be proceeded with as cuttings appear until the required number is obtained. If stocks of these plants are low they may be easily raised from seed, but, there is frequently not the same uniformity of habit and colour in the resulting plants. For some positions this is of minor importance, but for the purely formal garden every effort should be made to raise a sufficient number of plants from cuttings.

Hollyhock. — This grand old plant will probably never regain the position it once had in gardens owing to its susceptibility to fungous disease. With good cultivation seed sown now may be expected to produce plants which will flower at the end of the summer, and plants raised from seed have a better constitution than those propagated from cuttings.

Begonias.—Seeds of Begonia, both tuberous and fibrous-rooted, may now be sown in strong heat. Scatter the seed thinly on fine soil in well-prepared pots or pans, and cover the latter with a sheet of glass. As soon as the plants can be handled prick them off and keep them growing actively until they can be transferred to a frame over a half-spent hot-bed, where they will make good plants for late summer display.

THE KITCHEN GARDEN.

By Walter Y. Staward, Gardener to Mrs. John Feeney, The Moat, Berkswell, Warwickshire.

Carrots.—Hot beds for raising early Carrots in frames should be made of fallen leaves and horse manure. A fair depth of fine soil should be placed on top of the fermenting materials and the seed sown in the soil. When the seed has been sown soot should be dusted all over the bed as a deterrent to slugs, which are liable to destroy many of the seedlings in a single night.

Cauliflower.—Early Cauliflower plants in frames should be freely ventilated on fine days and the ground between the plants stirred at intervals. All decayed leaves should be removed and the plants watered carefully. Should snails attack the plants, spent carbide shaken around the latter will render them safe from the pests.

Lettuce.—Plants in frames should be given plenty of fresh air on fine days and mats should be placed handy in case of frost. Another sowing should be made in gentle warmth to obtain plants for a succession. It is advisable to place the seedlings near the roof-glass on a shelf and water them with great care, as young Lettuce soon damp off when given too much moisture.

Mushrooms.—Horse manure collected from stables where horses have been fed on good Oats should be used for the making of fresh Mushroom beds. All rough straw should be shaken clear from the droppings and the latter placed in a dry shed. Turn the manure every other day, as if left too long undisturbed it will become excessively hot and turn white inside. When sufficient dung has been collected for a bed, and properly prepared by turning, it should be placed in the house and well trampled with the feet or made firm with a beater, to make sure that the bed is very firm. A thermometer should be plunged in the centre of the bed and when the temperature falls to between 80° to 90° the spawn may be inserted. When this has been done three inches of good loam that has been passed through a sieve with an inch mesh should be placed all over the bed. Make the surface very firm by beating with a wooden beater. Water the soil copiously with tepid water, then cover the bed with short, old, hay. Mushroom spawn takes longer to develop at this time of the year than in summer, when the temperature of the house can be kept more regular.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Renovation of Old Trees.—Any trees, whether on walls or in the orchards, which have failed to crop satisfactorily, may be attended to any time during open weather. The top soil should be removed carefully with a fork until the roots are reached, when more of the soil between these should be taken out, and fresh loam cut from an old pasture substituted. At the same time work in some coarse bone meal and old mortar rubble. Make the soil firm with a rammer, and spread the new compost evenly over the roots. A little of the old soil may be put back on the surface, finishing with a mulch of half-decayed manure If dry weather prevails in the spring, give the trees a thorough watering, as this will encourage them to make fresh roots. Attention should also be given to the branches; those attached to walls should be taken down, all loose bark scraped off, and the stems well scrubbed with warm Gishurst compound, or sprayed with a caustic alkali wash. In most cases the trees thus treated will repay for the extra labour expended on them

Morello Cherries.—The trees of Morello Cherries may now be pruned, and the branches tied or nailed to the wall, whichever method is in use. If they were summer pruned, only the young wood will need shortening to the spurs, and the leaders cut back one-third of their length. It is important to see that the ties are not too tight, as this is a frequent cause of the trees gumming. Boards or trellis work should be used for the operator to stand on. All prunings should be raked up, and the borders lightly forked over, after giving the soil a surface dusting of lime and old soot. Cherries are subject to attacks of scale, and if these are present they should be removed, and the tree washed with warm soft soapy water.

Grafting.—Old trees that are intended to be re-grafted in the coming spring should be headed back, and suitable shoots for grafts from other trees tied in bundles, and heeled in under a warm wall, where they will keep plump until required.

Work in Frosty Weather.—Much may be done during periods of frost to lighten the work later, such as wheeling manure on to ground where the trees require top-dressing, and burning all rubbish, such as prunings, old branches that have been cut out, and loose bark. The ash will provide valuable material for placing around the trees. Poles may be cut and sharpened in readiness for hanging nets or tiffany on in front of wall trees that will require protection from frost when in bloom, and shorter stakes may be got ready for placing round Strawberry beds when the time comes for these to be netted.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Late Grapes.—The latest Grapes should not be allowed to remain on the vines after this date, but should be cut and stored in bottles and placed in a dark room where a temperature of 45° can be maintained. In removing the bunches from the vines they should be cut with a good length of the current year's growth in order that the stem will reach the water, and at the same time it will allow the bunch to hang sufficiently clear from the neck of the bottle in case of drip. After the removal of the bunches the pruning of the vines should be done forthwith. And at the earliest opportunity the vines should be cleansed. If mealy bug is present great care will be required to combat this pest. One of the best remedies is to cyanide the house when the vines are quite dormant, but great care is necessary when performing this operation. Another good remedy is to well scrub the vines with hot water at a temperature of 150°, applying immediately a dressing of paraffin emulsion before removing any loose bark. Afterwards the vines should be scraped clean and the dressing of paraffin emulsion repeated. Allow the vines to become dry, when they may be painted with a mixture of tar and clay. The clay should be made into a thick paste, then add one part of tar to fifteen parts of clay. This mixture may be painted on the rods and spurs with safety, but a weaker mixture (1 of tar to 25 of clay) should be used over the buds. At the same time thoroughly cleanse the interior of the house, using a strong, soapy wash, adding a wine glass of paraffin to every two gallons of the soapy water. Limewash all walls, afterwards removing all surface soil to the depth of three inches. Water the border freely, and open all ventilators night and day whenever the outside conditions will allow.

PLANTS UNDER GLASS.

By F. J. CLARK, Gardener to Lt.-Col. Sir GEORGE HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Forced Tulips.—Early forced Tulips often prove somewhat disappointing by reason of their short flower stems. This may be obviated by growing the plants in a partially darkened position. Over a portion of the side staging in a span or lean-to house, tack some strips of Hessian canvas on the inside framework of the house (roof and front lights). A portion of the canvas fixed at either end and a strip hung perpendicularly from the roof of the house and leading to the front edge of the stage will complete the enclosure. Tulips that show signs of making top-growths and have well filled their pots with roots, may be transferred from the frames to the position prepared as above described. A light layer of Moss placed over the pots will assist the plants to make top growth, and the Moss may be removed as the flowers push through it. The extra trouble taken will be repaid by the production of long-stemmed flowers and without loss of colour, provided the plants are taken out of the enclosure when the flowers are about half developed. This method is recommended for early forcing only, or during the dull, short days of winter.

Other Bulbs.—Hyacinths, Narcissi and Freesias which are pushing up their flowers should be placed on shelves or on the stage near to the roof glass, to keep them sturdy. The Freesia is a general favourite for room decoration by reason of its delicious perfume. The plants should be grown under cool conditions and in a light, airy position. They respond to steady forcing, however, and should be introduced to warmth in small batches in order to prolong the supply.

Carnations.—In my notes last week on the propagation of Carnations the statement that the cuttings should be placed in saucers "three quarters of an inch apart" should read "about one and a quarter inches apart." A six-inch saucer will thus accommodate about 25 cuttings.

INDOOR PLANTS.

ENCEPHALARTOS VILLOSUS.

WITH the exception of Cycas revoluta, very few representatives of the ancient plants of the order Cycadaceae are cultivated in other than botanic gardens. Prior to the war many large and handsome examples of Cycas, Enchephalartos, Zamia, Macrozamia and Dioon, were to be found in the numerous large continental private gardens. Many of these fine plants were lost during the war, but the Ghent show of 1923 contained evidence that efforts are being made to re-introduce the various species. At the present time it so rarely happens that a Cycad is found growing in a British private garden that a plant bearing a cone is of more than usual interest. A specimen in flower may be seen now in Sir Hugh Thomas' gardens at Castle Hall, Milford Haven (gr., Mr. W. Durrant).

This specimen of Encephalartos villosus (Fig. 16) carries a fine cone of a soft, golden colour which is very attractive. This species produces cones more often than any other of the Cycads but, fortunately, cone production does not in any way affect the health of the plants, and the cones may be allowed to remain so long as they are attractive. No fertile seeds are produced unless cross pollination is effected. Male cones are longer and more cylindrical than female cones. Encephalartos villosus is a native of Natal and is figured in *Botanical Magazine*, tab. 6654.

GREENHOUSE CLIMBERS.

THERE are many beautiful free-flowering climbers most suitable for embellishing cool greenhouses and conservatories.

Amongst those that may be highly recommended for the purpose are Cantua dependens (buxifolia), "The Magic Tree" of the Peruvian Indians. This is one of the most charming climbers introduced to cultivation for planting in a cool house for covering pillars and rafters with long, drooping branches. The rosy orange, funnel-shaped flowers are freely produced throughout the spring and early summer months. This Cantua should be planted in a mixture of light, turfy loam, fibrous peat and silver sand, and the soil should be well-drained. The plant may be propagated from half-ripened cuttings placed in sandy soil under a hand-light in very slight warmth.

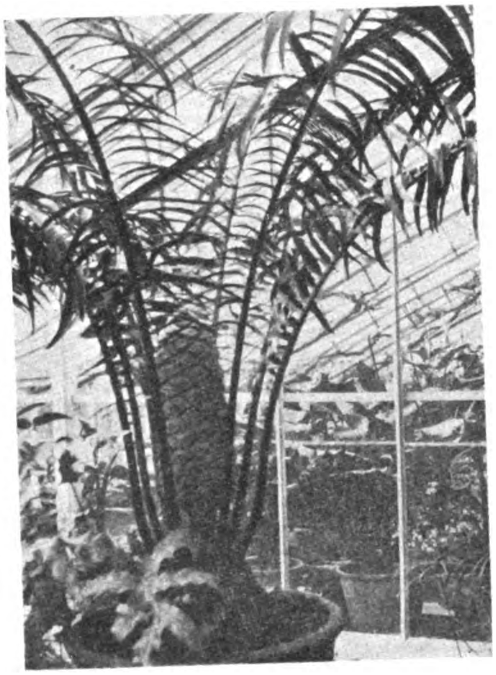

FIG. 16. FRUITING SPECIMEN OF ENCEPHALARTOS VILLOSUS.

The various species and varieties of Habrothamnus (syn. Cestrum) are very free flowering evergreen plants that remain in bloom for several month until late in the autumn. The flowers are produced in terminal clusters. The plants may be grown in pots or planted out, for covering pillars and rafters, or they may be grown against a wall provided it is shaded from the strong sunshine. The flowers are produced on the wood of the previous year, therefore pruning should not be done until flowering is over. There are several species and varieties; amongst the best are H. elegans, purplish red; H. Newellii, bright crimson, one of the best; H. aurantiacus, golden yellow and H fasciculatus, crimson. The plants are propagated from cuttings formed of firm side shoots. They should be rooted under a hand light, with slight bottom heat.

Hibbertia dentata is a very pretty climber, or twiner, with dark coppery foliage; it produces an abundance of deep yellow flowers that last for a long time during the autumn and winter, a valuable and highly decorative plant when flowers are getting scarce. It is suitable for use as a climber planted out in the conservatory, and makes an ideal plant when grown as a specimen in a pot with the young shoots twined on a trellis. In this way it becomes a complete mass of foliage and bright yellow flowers that are set off by the bronzy shining foliage. H. volubilis is another free flowering climber or twiner with dark green foliage and large yellow flowers. This is a strong grower and makes a good pot or pillar plant. Cuttings of both species root freely in slight heat; H. dentata may be propagated also from seed.

Lonicera sempervirens minor is an exceedingly pretty and attractive free-flowering evergreen Honeysuckle, with a neat, compact habit, producing flowers of a rich, glowing scarlet and yellow, that last in bloom for a very long period. This excellent climber may be planted out for covering the roof rafters, or for training near the roof; the bright clusters of hanging flowers have a very pretty effect. The plant requires to be shaded from strong sunshine. Cuttings of half ripened shoots taken off with a heel, placed in a hand light over slight heat, offer a ready means of increasing the stock.

Rhynchospermum jasminoides is another free flowering, evergreen, cool greenhouse climber with a neat, compact habit. It has dark green foliage, and pure white, very fragrant flowers that are freely produced. It is an excellent subject for planting out for covering the pillars of the house, or for placing against a greenhouse wall, and is especially useful when grown as a pot plant for covering a balcony trellis or wire screen. It may be propagated from cuttings, rooted in slight heat. Clematis indivisa is a very effective evergreen climber, with bright, shining, evergreen foliage, and panicles of creamy-white, star-shaped flowers, that are freely produced during April and May. It does well planted out, and flowers freely when grown as a pot plant. C. indivisa lobata is a variety with lobed leaflets, but the flowers are similar to those of C. indivisa. This Clematis may be propagated from cuttings formed from ripened wood and placed in slight heat. Mandevilla suaveolens is a beautiful evergreen climber and is very attractive when planted out and allowed to ramble amongst the rafters under the roof of the conservatory. It is not satisfactory grown as a pot plant and it requires much root space to develop its large, white, fragrant flowers. This plant also may be increased by means of cuttings formed of the small, half-ripened, side shoots taken off close to the old wood, and placed in a hand light with moderate bottom heat, in sandy soil; it may also be raised from seed. Physianthus albens is a very effective and distinct climber most suitable for planting out in the cool conservatory for covering pillars and rafters. The white flowers are tinged with rose and are produced with freedom during the summer. Cuttings of firm, short, side shoots root freely under a hand-light in gentle heat, or seed may be sown in heat in spring.

Solanum jasminoides is another free flowering pillar plant. It produces an abundance of white flowers that are slightly tinted. This Solanum is an invaluable plant for growing in ordinary cool greenhouses or conservatories. In the warmer parts of Devon and Cornwall it grows and flowers freely in the open; also in the South of England in sheltered positions provided slight protection is afforded during the winter. Cuttings of half-ripened wood placed in slight heat root freely.

All the climbers described above do well grown in soil consisting of two-thirds light turfy loam and one-third fibrous peat, or leaf-mould, mixed with silver sand. It needs free drainage to prevent the soil from becoming sodden or sour through over watering. None of the plants enumerated is much subject to insect pests provided the conditions of growth are hygienic. *John Heal, V.M.H.*

NOTICES OF BOOKS.

Diseases of Glasshouse Plants.

THE annual monetary loss, due to attacks of fungous, bacterial and physiological diseases of commercial crops grown under glass, must be enormous. It has been claimed that where the best cultural methods are employed diseases ought never to appear, but under general glasshouse conditions it is rare to find a crop which can be given an absolutely clean bill of health. The Lea Valley is world famous for the high state of cultivation maintained by the growers of this district, and Dr. Bewley, the author of the book under review,* in his capacity as Director of the Cheshunt Experimental Station, has taken advantage of his opportunity of studying the growers' troubles on the nursery itself and, by so doing, has gained an insight into the best cultural methods employed, which knowledge has doubtless served him in good stead in devising and recommending disease control measures of a really practicable nature.

The author rightly pays attention to the hygienic conditions of the greenhouse in relation to health and disease in plants, and gives advice on the situation, construction, heating, and water supply of the structure from this standpoint. In the chapter dealing with the "Diseased Condition of Plants due to Environmental Factors," the relationship between light, heat, soil conditions—mechanical and chemical, atmospheric humidity, etc., and plant disease is studied in detail, and some important observations are made.

In the consideration of diseases due to fungi, the latter are classified under the headings of root diseases, wilt diseases, and stem, leaf and fruit diseases. Chapters are also devoted to bacterial and mosaic diseases. The author gives a lucid description of the symptoms of the many diseases and the best and most economical methods of controlling them. Tomatos, Cucumbers, Chrysanthemums, Melons. and Carnations are the main crops dealt with. The methods of sterilising soil by steam, hot water, and chemical compounds as a means of freeing it of diseases and pests, is discussed at length, and formulae and instructions for making the chief fungicides are detailed.

The book will undoubtedly prove a boon to the many growers engaged in the glasshouse industry, and will help them to understand the reasons why plants become diseased. If the general advice given by the author is followed, their troubles, and incidentally, their losses, will be reduced to a minimum. The text is illustrated by a number of half-tone blocks and line-drawings and is particularly free from typographical errors. We note, however, that the cross-reference given under sclerotium disease of Tulips is really to a paper by Mr. J. K. Ramsbottom on the "Control of the Eelworm Disease of Narcissus."

We hope that Dr. Bewley will give us a companion volume dealing with such important market crops as Grapes, Peaches, Strawberries, and forced vegetables.

Standardised Plant Names.†

THE confusion existing in plant nomenclature is so well known to every one interested in horticulture that we can appreciate the laborious efforts of the American Joint Committee on Horticulture in its attempt to bring every tree, shrub and plant in commerce in America under one standardised "scientific" and one standardised "common" name; by so doing it is hoped that trade in plants in America will be considerably simplified.

The task undertaken by the Committee has, needless to say, been one of great magnitude. This Committee began its work in 1915, and in 1917 published the *Official Code of Standardised Plant Names*, opportunity being given the Committee to make use of the "Finding List of Binomials," published in the sixth volume of Bailey's *Standard Cyclopedia of Horticulture*. The war years of 1917 and 1918 impeded further research, but from 1919 onwards the work was taken up seriously, and help was forthcoming, not only from individuals but also from the principal horticultural societies and organisations.

Space will not permit a detailed description of the system followed, but there are one or two decisions of the Committee worthy of note. For instance, Recommendation X, Article 23, of the *International Rules of Botanical Nomenclature*, has been dropped, and no longer are capital initial letters to be employed for specific names no matter whether the species is taken from the name of a person or from a generic name. Another decision has been to abandon the use of the ii as an ending to the species names of the second declension genitive and to employ one i only. As a result Calochortus Howellii is now written Calochortus howelli, Dracocephelum Moldavica as Dracocephelum moldavica, and so on. These practices, we may add, have been universally adopted by zoologists for some time past.

The standardisation of one common name for each plant has been the Committee's greatest task. One plant may masquerade under dozens of common names, and the same common name is often applied to wholly different plants. In order to reduce this confusion the Committee has collated all the common names given for a plant in leading American and English botanical and horticultural works and publications and arbitrarily proposed one name wherever possible as the national standard common name. The use of pseudo-scientific Latinized names for horticultural hybrids is condemned and simple common names suggested, thus, Nephrolepsis exaltata bostoniensis elegantissima compacta cristata has been rechristened with the simple name of Cockatoo Boston Fern. Such changes as these may be welcomed by nurserymen.

Another change has been the suppression of the use of the possessive sign (') with the accompanying letter "s" where not required for euphony and clearness, *e.g.*, Wilson's Barberry is now written Wilson Barberry; Brown's Lily becomes Browns Lily. The use of the hyphen has also been deleted wherever possible, and such words as pine-apple and bell-flower now become pineapple and bellflower—a practice which is quite common in this country.

In the large classes of florists' flowers—Roses, Iris, Tulip, Chrysanthemum, etc.,—name duplicating is very common, and the Committee rightly urges the need for the registration of varieties. The Tulip may be taken as an example of the work undertaken by the Committee, but we are surprised to see no reference to the magnificent work accomplished by our own Royal Horticultural Society in the years 1914–15. A special Tulip and Nomenclature Committee consisting of the leading Tulip growers in this country and in Holland set up trials of all the known Tulips and varieties in commerce, and a scheme of classification was drawn up and the synonomy of the varieties with more than one name settled. In the main the American classification is the same as that adopted by the above committee, but we find differences in the choice of names. For instance, the R.H.S Committee favoured the name of William Copland as opposed to Sweet Lavender, which was nothing more or less than a name given to the paler-coloured flowers of William Copland, grown under forcing conditions in the greenhouse. The American Committee has now sanctioned the use of Sweet Lavender in place of William Copland! Again, the variety Louis Lenglart has no synonym attached in the American list, whereas in the English list Louisiana is regarded as being the correct name for this variety. Other confusing examples could be given in number, and realising as we do that *Standardised Plant Names* is intended primarily for the use of American horticulturists we feel that growers will have their burdens increased if lists are to be brought up-to-date in this fashion.

The arrangement of the alphabetical list of scientific and common names of plants is readily understood. The approved scientific names are in bold-faced type, and the approved common name is in small capitals. Synonyms or unapproved names are in italics. It is declared that the names as published are to be adopted as standards for a period of not less than five years from 1923.

A Vegetable Growers' Handbook.

THIS is a new issue of a treatise on vegetable growing* by two ladies, who evidently understand what they are writing about, and their book should be of service to amateur growers and small cultivators generally. The authors deal in a very sensible manner with all the common crops of the kitchen garden, and there are also chapters on seed-sowing, and the care of seedlings; manures, a monthly calendar, and "odds and ends," in which several useful receipts are included and miscellaneous information on a variety of subjects given.

The practical advice on growing vegetables is sound and there are useful notes on the chief pests which attack the respective crops. In touching on the question of eelworm in Cucumbers the authors recommend exposing the soil to the air, stating that if this is done eelworms are seldom prevalent. This hardly goes far enough, for nothing is written about thoroughly cleansing infected houses and the need for sterilising the soil either by steaming or baking. The advice to sow Onion seed thinly and separately may be adopted by those who wish to obtain exhibition bulbs, but small growers will find it more profitable to sow thickly, using the thinnings as salad and allowing the crop to grow so thickly that the bulbs will almost push each other out of the rows. The resulting bulbs will be smaller, but more useful, and our experience is that medium-sized Onions keep better than very large bulbs.

For preventing attacks of Onion fly it is recommended to stretch thin string that has been soaked in creosote along the rows. In "Odds and Ends" a mixture of clay and manure is recommended for placing on the bark of trees to prevent damage by rabbits gnawing the bark, whilst to keep field mice from damaging crops spreading Elder branches along the rows is advised. To those troubled with cats in their gardens the authors advise putting ammonia in uncorked bottles or a little chloride of lime in an open container, about the garden. The book is well printed and singularly free from misprints.

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM VIOLET CHOLMLEY.

MR. W. SMITH, gardener to J. Cholmley, Esq., Place Newton, Wintringham, Yorkshire, sends a very attractive hybrid raised in the gardens there between C. Muriel Hollington (insigne Sanderae × niveum) and C. bellatulum. The flower is wax-like in texture and with a glossy surface; although it is stated to have been taken from a very small seedling plant it measures four inches across the extended petals. The sepals and petals are pure white, with a slight tinge of Primrose colour on the inner halves, and dotted lines of dark violet. The lip, which shows C. bellatulum distinctly, is tinged with Primrose-yellow and has violet markings inside. The broad staminode is pale yellow and the lower sepals white.

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* *Diseases of Glasshouse Plants*. By W. F. Bewley, D.Sc. Ernest Benn, Ltd. pp. 208. Price 12s. 6d. net.

† *Standardised Plant Names*. By the American Joint Committee on Horticulture Nomenclature. pp. 546. Prices $5.00 and $6.500 for copies in flexible covers. Mount Pleasant Press, Harrisburg, U.S.A.

* *A Vegetable Growers' Handbook*. By Mrs. Fanny Bennett and Eleanour Sinclair Rohde. Martin Hopkinson and Co., Ltd., Heurietta Street, W.C.2. Price 2s. 6d. net.

NOTES FROM GLASNEVIN.

WHETHER Spring comes early or late we have a foretaste of it already in two Snowdrops now opening their first flowers. For some years past the earliest species to flower at Glasnevin has been Galanthus Elwesii, the giant of the race. Numerous clumps have become established in a bed of shrubby Spiraeas in fairly stiff soil, making leaves almost as large as those of certain Daffodils. Somewhat smaller but equally beautiful is Galanthus cilicicus, also now in flower. This species is well established in the rock garden where a very good collection of species and varieties has been got together during the past few years. G. cilicicus was described and figured in the *Gardeners' Chronicle* so long ago as 1898.

The only Crocus in flower at present is C. Tournefortii, whose lilac flowers with orange stigmas peep up from among the leaves, which come rather before them. C. aureus, or rather the form called C. lagenaeflorus, is well up under an Arbutus and given a few bright days would be in flower. Although always cited as a synonym of C. aureus the form here alluded to invariably flowers far in advance of typical C. aureus.

In the rock garden the chief interest lies in the green and gray colour of numerous low-growing evergreens sufficiently well-known to lovers of rock gardens; but the most striking colour effect is furnished by Tiarella cordifolia purpurea, whose leaves are now a rich wine colour; probably purple-red best describes it.

The Saxifrage season is already beginning, and quite a number of flowers are open on the caucasian S. Desoulavyi; rather small and yellow, they cannot be compared with others to flower later, yet at this time they at once attract attention. S. apiculata Albertii—a very early form—has pale-yellow flowers already open, and S. Burseriana tridentina has prominent buds on stems an inch long. Why one particular plant growing "cheek by jowl" with others of the same variety should be so much in advance is a problem. The Primulas, too, are on the move, the rather tender P. megasaefolia being in flower, while the buds of P. rosea are quite distinctly showing colour, more especially close to the edge of the Lily Pond. Iris unguicularis and several of its varieties are still flowering freely in sunny places in front of the plant houses. I. reticulata is fast developing, and the fat shoots of I. histrioides are coming on apace. One of the most striking plants on the rock garden is Euphorbia biglandulosa. Planted just behind a good stone over which the lower shoots hang the effect is good; the shoots are a couple of feet or so long, clothed with stiff, pointed glaucous leaves, each shoot surmounted by a head of flowers with yellowish bracts.

For winter and early spring the Heaths are invaluable. The many forms of Erica carnea, sent out originally, I think, by Messrs. Backhouse of York, are already attractive and Erica darleyensis, long known as E. mediterranea hybrida should be grown in every garden. A few plants of E. lusitanica are also in flower though somewhat before their time. Sheltered by the branches of a Pine, Cyclamen Coum is now pushing up its crimson flowers.

The Witch-Hazels are beginning to open, particularly small plants of Hamamelis arborea and H. mollis. For some reason these beautiful early-flowering shrubs are not a complete success at Glasnevin, growing very slowly and occasionally dying unaccountably. A small bed raised above the general level of the ground and made up with a considerable addition of peat looks more promising, but still the plants are far from equalling those I have seen in the South of England.

In the warm greenhouse, where the more popular decorative plants are shown, the chief display at present is furnished by groups of Cyclamens, Primulas, blue Cinerarias, Roman Hyacinths, Narcissus Tazetta, Moschosma riparium, Salvia splendens, S. farinacea, Calceolaria Burbidgei, Eupatorium Weinmannianum, Pelargoniums, etc. In the stove house a large batch of Coleus thyrsoideus is attractive by reason of its spikes of blue flowers while equally attractive and less common is Pycnostachys Dawei, represented by about a dozen bushy plants, four to five feet high, furnished with short dense spikes of blue flowers. A group of Begonia socrotana was a cheerful sight at Christmas time while batches of its derivatives, B. Gloire de Lorraine, B. Turnford Hall, etc., growing near by demonstrate the valuable work of the hybridist in raising new and beautiful plants for the use and enjoyment of mankind. Pavonia intermedia, a tropical shrub of the Mallow order, is striking by reason of the red bracts subtending the flower proper. Bromeliaceous plants are not only botanically interesting but attract visitors immensely by their quaint forms, the ofttimes peculiar and striking tinting of the leaves and the bright colours of the bracts and flowers. Aechmea calyculata and A. fulgens var. Thibaudiana are attractive at present, likewise Tillandsia tenuis and T. Lindenii major. Two interesting basket plants for a warm house are Aeschynanthus Lamponga and Nematanthus longipes, both with bright red flowers.

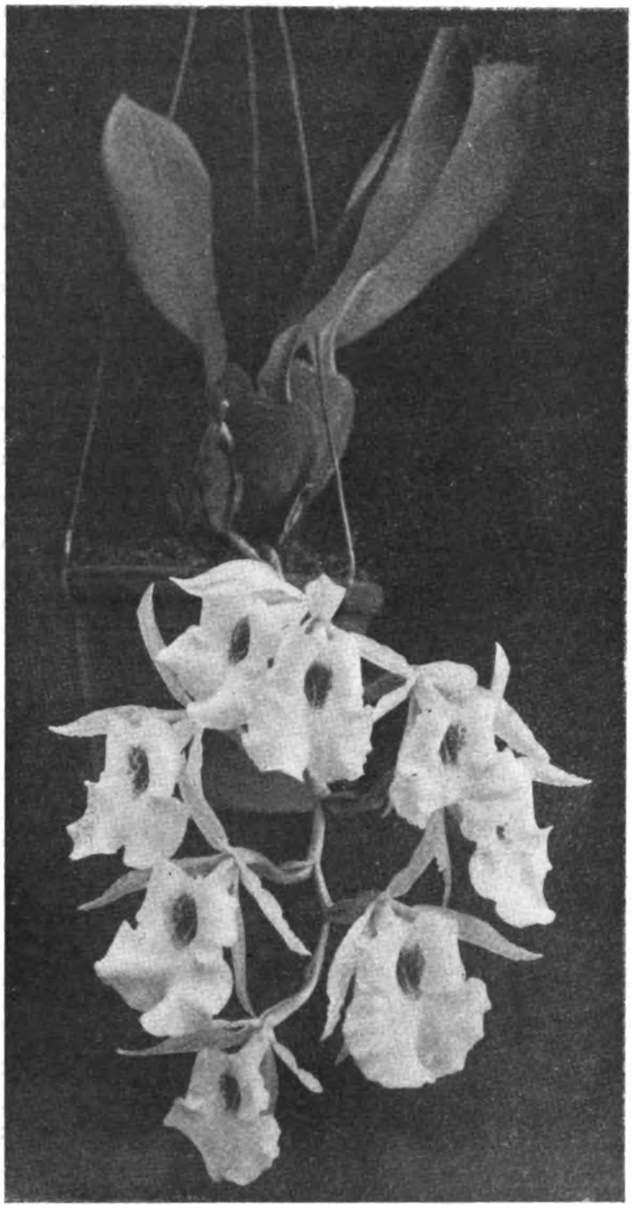

FIG. 14.—TRICHOPILIA GOULDII.

Orchids in flower are fairly well represented at present, particularly Calanthes which have rarely flowered better. In spite of the rather sunless summer the pseudo-bulbs grew to a fine size and ripened well, and now the spikes are more than usually vigorous. They include C. Veitchii, C. Veitchii grandiflora, C. luteo-oculata, C. bella, and C. Wm. Murray. Grouped with many of the best Paphiopedilums (Cypripedium) the combination is effective. Numerous varieties of Laelia anceps are now opening, while others of the more ornamental genera are Oncidium bicallosum, Laelio-Cattleya Canhamiana, Trichopilia Gouldii, a beautiful hybrid (fragrans × suavis) raised by Messrs. Charlesworth (Fig. 14); Laelia fladnosa with small, rich yellow flowers; Sophro-cattleya Pandora of attractive colouring; Pilumna nobilis (Trichopilia), with fragrant white flowers with yellow throat: Paphiopedilum Sanderae Kimballii (insigne Sanderae × Laura Kimball). More modest but equally interesting are the following now in bloom: Bulbophyllum gracilipes, B. comosum, B. setisepalum, B. Pechei, Cirrhopetalum Makoyanum, C. Medusae, Coelogyne miniata with small coral-red flowers, C. lentiginosa, Lycaste Barringtoniae, Masdevallia peruviana, M. cucullata, M. pachyura, M. tovarensis, M. Macrura, Maxillaria elegantula, M. dichroma alba, M. lepidota, M. variabilis, M. candida, Odontoglossum nevadense pictum, O. cristatum, O. Suttoni, O. constrictum, O. aspersum, Oncidium cheirophorum, Platyclinis glumaceum, and P. uncata. *J. M. Besant, Glasnevin Botanic Gardens.*

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HORTICULTURAL LEGISLATION IN 1923.

So far as purely horticultural legislation is concerned, nothing very startling occurred during the past year, but a brief summary of the principal matters may be of interest to readers.

Colorado Beetle.

An order dated the 6th December, 1923, was issued by the Ministry of Agriculture and Fisheries, operating from the 17th of the same month, with a view to preventing the introduction of the Colorado Beetle. This Order prohibits the landing in England or Wales of any living plants, Potatos or Tomatos, shipped from any port in European France, unless the landing is authorised by an Inspector's license, or unless each consignment is accompanied by copy certificates of an officer of the French Services d'Inspection Phytopathologique. The original of such certificates is required to be forwarded by post to the Ministry of Agriculture and Fisheries (Horticulture Division) before the consignment is despatched. In the case of living plants, Potatos and Tomatos, not grown in France, similar certificates have to be issued by a duly authorised official of the country of origin, or else a certificate of origin visé by a Local Authority in the country of origin. The country and place where the produce was grown is required to be stated in such certificate. Living plants, Potatos or Tomatos, shipped from any port in European France and landed in England or Wales without such license or certificates are to be destroyed by and at the expense of the importer, unless authority to dispose of them otherwise is obtained from an Inspector. The penalty in default is £10. Power to search premises is given to Inspectors, and the penalty for obstructing them is also £10. The expression "living plants" includes all trees, shrubs, and the tubers, bulbs, rhizomes, corms, roots, layers, cuttings, or any parts of any plant, tree or shrub, but does not include cut flowers, or vegetables for consumption. This new Order revokes that of 1922, but does not affect the requirements of the Destructive Insects and Pests Order of 1922.

Agricultural Rates.

By the Expiring Laws Continuance Act of 1923, the concessions given to horticulturists and agriculturists by the Agricultural Rates Act of 1896 were continued until 31st March, 1925.

Wart Disease of Potatos.

The Wart Disease of Potatos Order, 1923, came into force last June, and revokes all previous Orders of the same nature. Persons in charge of any land on which disease exists, or having under their charge Potatos affected with the disease, are required to notify the fact to the Ministry or its Inspector. Tubers visibly affected with the disease are not to be sold or offered for sale for any purpose. The Order contains directions as to the precautions to be adopted in cases of outbreak of this disease and also imposes restrictions on planting Potatos on infected land, as well as restrictions on removal or sale of Potatos grown in an infected area except as therein specified. No Potatos are to be planted or sold or offered for sale for planting in England or Wales which are not the subject of a certificate prescribed in the Order. This regulation however, does not apply to the planting of Potatos saved from the crop grown on the same land in the previous year. No person is to sell as Potatos of a improved immune variety those which are not of such approved variety. Restrictions are also imposed on the sale or planting of Potatos imported from abroad, except under license. Powers of entry and search are given to Inspectors and the penalty for contravention of the Order is £10. In effect the Order continues the previous regulations but goes still further in providing (1) that the only Potatos which will be allowed to go out of Infected areas into clean areas are "ware" Potatos of approved immune varieties, and also (2) that no Potatos may be planted, or sold for planting anywhere in England or Wales unless they have been previously certified for seed purposes as laid down in the Order, or in the case of foreign Potatos, unless their planting or sale for planting is licensed by the Ministry.

Silver Leaf Disease.

The Silver Leaf Order of 1923 came into force last June and provided that:—

(1) The occupier of any premises on which Plum or Apple trees are growing shall, in each year before July 15th, destroy by fire on the premises all the dead wood of each Plum or Apple tree, and where such dead wood is in the trunk of any such tree and extends to the ground, the occupier shall before the said date grub up and destroy by fire on the premises the whole of any such tree, including the roots.

(2) An Inspector may at any time serve a notice on the occupier of any premises requiring him to destroy by fire on the premises, within the time specified in the notice, any wood of any kind whatsoever on the premises on which there are visible fruiting bodies of the fungus Stereum purpureum.

Powers of entry are given to Inspectors and the penalty for contravention of the Order is £10.

Railway Rates for Merchandise.

The new standard charges proposed by the railway companies have been published, but these are subject to approval by the Rates Advisory Committee. Although the horticultural trade did better than most trades when the new Classification was settled by the Rates Advisory Committee, horticulturists are by no means satisfied as to the increase in rates which can still be made by the railway companies thereunder. The main objections are to the rates proposed for long distances.

Draft Rating and Valuation Bill.

Considerable uneasiness has been caused in the minds of growers by certain of the proposals outlined in the above draft Bill. This Bill, however, has not yet been submitted to Parliament and has merely been issued by Government Officials for public criticism. Its provisions are too voluminous for any detailed description to be given in these columns, but much opposition has been raised to the proposal to abolish the "Parish" as the "Rating unit," as well as the proposal to do away with Overseers and Rating Assessment Committees as such. The clauses which will however, provoke most discussion are those which seek to give district valuers, or other Inland Revenue Officers, new and wider powers to interfere with the preparation of assessment lists and to appear at the public expense in opposition to any appeal against assessment which may be lodged by a rate-payer. The issuing of the Bill, however, creates a notable precedent, as this is the first occasion on which a proposed Parliamentary Bill has been submitted to the public, for their approval or otherwise, before being finally completed and presented to Parliament in the form of a Government Bill.

Fertilisers and Feeding Stuffs Act.

In view of the complaints raised as to the working of this Act a Departmental Committee of the Board of Agriculture has been sitting to take evidence on the subject, and these sittings will continue during the new year. Mr. Haygarth Brown of the Ministry of Agriculture, has devoted much time and attention to the questions raised.

Bulb Diseases.

By the Bulb Diseases (Isles of Scilly) Order of 1923 which came into operation on the 1st January, 1924, each package or consignment of Daffodil or Narcissus bulbs landed in the Scilly Isles must have attached thereto or be accompanied by:—

(a) In the case of bulbs grown in England, Wales, Scotland, Northern Ireland, the Irish Free State, or the Channel Islands a certificate issued by a duly authorised official of the relative Department of Agriculture that he has examined the bulbs and found them to be clean and free from disease; or,

(b) In the case of bulbs grown in any other country, the copy certificate prescribed in the Destructive Insects and Pests Order of 1922; or,

(c) A declaration that the bulbs have been immersed for a period of three hours in water retained at a temperature of 110° F. This declaration must be signed by or on behalf of the approved person (*i.e.*, a person approved for this purpose by the Minister) who has carried out the treatment and must be made not more than three months prior to the date of shipment.

The Order also prescribes measures to be taken by bulb growers in the Isles in cases where disease is found to be present.

In the case of consignments sent from this country, the certificates indicated under (*a*) above will be issued by the Ministry's Inspectors after examination of the bulbs. All applications for these certificates should be addressed to the Ministry at 10, Whitehall Place, London S.W.1. *H. Morgan Veitch.*

TREES AND SHRUBS.

ANCIENT MULBERRY TREES.

This "wisest of trees," as Pliny termed the Mulberry, is supposed to have been introduced into England when James I. endeavoured, in 1609, to obtain a supply of silk for the foreign weavers settled in Spitalfields and other parts of London. But as early as 1555, specimens of the Black Mulberry had been planted in Lambeth Palace grounds, and, earlier still, at Syon House. Mulberry gardens were formed at the instigation of James I., both at St. James's Park and Greenwich Park, in 1609, but the single remaining tree of this kind on each of these sites, though in the former case labelled as having been planted at the instigation of that Monarch, are evidently of no great antiquity. The Buckingham Palace tree bears a label to the effect that it was "Planted in 1609, when the Old Mulberry Garden was Formed by James I." But a comparison of size with that of existing specimens whose ages are known, and taking into account situation and quality of soil in which it is growing, the statement is open to doubt.

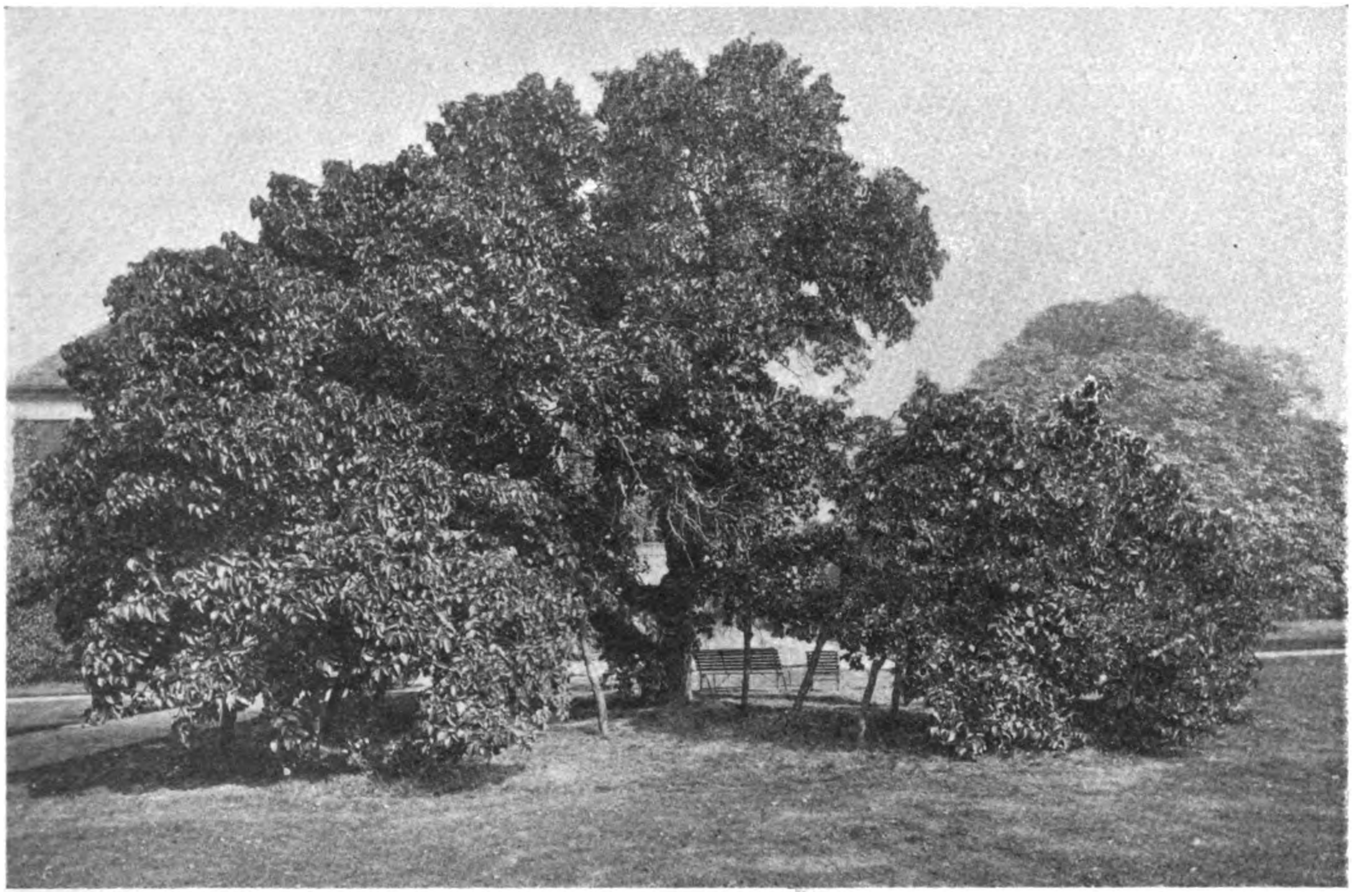

FIG 15—A FINE OLD MULBERRY TREE IN LORD LAMBOURNE'S GARDEN AT BISHOP'S HALL, ROMFORD.

Tradition and a label attached point to one of the old and shattered trees at Charlton Park, Blackheath, as the first Mulberry tree brought to England, and certainly, when the above points of comparison are taken into account, there would appear to be substantial grounds for the statement. The largest tree, which has suffered much from storms, having lost the upper part of the stem in consequence, is still of giant proportions, the trunk girthing eight feet eight inches at three feet from ground level. Though the trunk is old and shattered, the well-rounded head of foliage was perfectly healthy when I saw the tree last autumn, and fruit was borne in great abundance.

There are quite a number of old and remarkable Mulberry trees in and around London, chief of which are those in Finsbury Circus, in Ruskin, Vauxhall, Waterlow, and Clissold Parks, and in the grounds of Victoria Park Hospital. On Hampstead Heath, at Keat's House, Keat's Grove, is the straggling, propped-up Mulberry tree, under which the poet wrote the "Ode to a Nightingale,"

In the kitchen garden at Cleve Court, Minster, the recently-acquired property of Lord Carson, is one of the largest, healthiest and best developed specimens that I have seen, but on several estates in England—for the tree is rare both in Scotland and Ireland—may be found well grown trees, especially in the Thames valley and the counties bordering London.

The accompanying illustration, Fig. 15, of a very old tree in Lord Lambourne's garden, at Bishop's Hall, Romford, gives a good idea of the general appearance of the Mulberry; squat, far-spreading and lumpy of foliage. The tree rarely attains to a great height, but spreads laterally to a wide extent, branching into heavy limbs at a few feet from the ground. Owing to the weighty branches and brittle nature of the wood, most old trees require to be propped or to have the heavy branches tied together, in order to prevent them from falling apart. The timber is of a rich colour, with a distinct and beautiful grain, and valuable as cabinet wood, while its lasting properties are well known. *A. D. Webster.*

EUROPEAN CONIFERS IN NEW ENGLAND.

Seventy-five years ago three European Conifers were much planted in the north-eastern United States because native trees at that time were not often found in American nurseries, and because the idea prevailed and still prevails that exotic plants were more valuable than native ones. These three Conifers were the Norway Spruce so-called (Picea Abies or excelsa), the Scotch Pine (Pinus sylvestris) and the Austrian Pine (P. nigra). These are hardy, fast-growing, and for several years here handsome trees.

The introduction of the Norway Spruce must—according to a recent *Bulletin* from the Arnold Arboretum—be considered a misfortune however for New England, where it was planted and is still planted as an ornamental tree in great numbers. It grows rapidly while young and often remains in good condition until it is from thirty-five to forty years old; then it begins to fail, the leading shoot dying or failing to make a satisfactory growth and all the upper part of the tree gradually becomes thin and unsightly, with the result there is now hardly a park or a country place in New England where the sad spectacle of such half dead trees cannot be seen. Further south the Norway Spruce often promises to become a longer-lived tree; and the best specimens known to the Arboretum are in the military cemetary at Gettysburg, Pennsylvania.

The Scotch Pine, which in Europe is a magnificent tree and one of the most picturesque of all Pines, is hardy and grows rapidly in America often reproducing itself from self-sown seed. When about thirty years old it has the unfortunate habit of dying suddenly without obvious cause, and it is doubtful if many Scotch Pines more than fifty years old can be found in that country. Although inferior as an ornamental tree and probably as a timber producing tree to the native Red Pine, the Austrian Pine is hardy and grows rapidly in New England, but, like the Scotch Pine, often dies suddenly when only thirty or forty years old.

These three Conifers are easily raised and the seed is readily obtained. The young plants grow rapidly and they are therefore profitable plants for nurserymen to handle, and the American public, in spite of the experience with them, continues to buy them.

In some of the states they are raised by state agencies and given away or sold at a nominal price, or planted by the states in reforesting operations.

Two Conifers from south-eastern Europe, although still insufficiently tested in the north-eastern States promise to be valuable. These are a White Pine, Pinus peuke, and a Spruce, Picea omorika. The former has been growing in the Arnold Arboretum since 1883: it is quite hardy, but as an ornamental tree it has no advantage over the native White Pine or the western Pinus monticola. Picea omorika was first raised from seed at the Arboretum in 1881; it has proved hardy and has grown rapidly, but suffers somewhat from the weevil which does so much damage to the leader of the native White Pine. Picea omorika is the only Spruce tree with flat leaves which is really hardy in the New England climate; and at the end of forty-two years it is stated to be by far the handsomest and most satisfactory Spruce tree in the Arnold Arboretum.

HYPERICUM BALEARICUM.

THIS is one of the most distinct of the shrubby Hypericums and quite unlike any other member of the genus. It makes a fairly dense little bush, about 2 feet tall, well furnished with small, ovate leaves, which have a very crinkled appearance, owing to the curious "warts" on their undersides, and their wavy margins. These leaves are a good, full-toned, glossy green, and although the plant is not generally considered hardy, specimens are have seldom affected by frosts here. Indeed, we grown H. balearicum here for a good many years and 20° of frost have not done it much injury.

Its dwarf growth, compact and upright habit render this little shrub of the highest value in the rock garden, and it is remarkably pretty when, during the late summer, it adorns its healthy green with numbers of golden yellow flowers, each nearly 1½ inch across. H. balearicum is a native of the Balearic Islands, having been introduced over two hundred years ago. It is happy enough in any light, free soil, with full exposure. *J., N. Wales.*

SYMPLOCOS PANICULATA (CRATAEGOIDES).

THIS beautiful shrub, native of the far east, was first introduced to cultivation in the United States about 1871 5, whence it came to Great Britain. Authorities differ as to its correct name, but all appear to agree as to its beauty when in flower and also when in fruit. The *Kew Index* gives Symplocos paniculata of Wallich as a synomyn of S. crataegoides, Buch-Ham. Mr. W. J. Bean in his *Trees and Shrubs Hardy in the British Isles* uses the latter name and also gives Buchanan-Hamilton as the authority for it. In Bailey's *Standard Cyclopaedia of Horticulture*, Mr. A. Rehder describes the species as *S. paniculata, Wall.* (*S. crataegoides, Buch-Ham. Lodhra crataegoides, Decne*).

In the *Gard. Chron.* of November 3, 1923, Vol. lxxiv, p. 263, appeared a description of this fine shrub from Mr. E. H. Wilson, accompanied by an illustration of a fruiting branch.

In the Arnold Arboretum, U.S.A., this Symplocos fruits freely and the brilliant sapphire colour of the fruits has earned for the species the popular title of Sapphire Berry. S. paniculata flowers freely in this country but does not appear to be such a success in the fruiting stage here as in America. Some idea of its beauty when smothered in its white, fragrant flowers in early summer, may be gathered from the supplementary illustration which accompanies the present issue. The illustration shows a fine specimen in the Arnold Arboretum and will doubtless make many shrub-lovers in this country envious and create a desire to acquire this handsome plant for their own collections. The shrub is in cultivation at Kew where "it flowers freely and prettily."

There is another species, S. tinctoria, which has been introduced to this country on several occasions, but the plant is not a success as it is not quite hardy.

HARDY FLOWER BORDER.

SELECT BLUE FLOWERS.

FROM earliest spring to late autumn hardy herbaceous perennials and bulbous subjects provide a constant succession of flowers, giving colour to the garden.

Blue flowering subjects are always in demand and the following list includes a few of the choicest for garden purposes.

Salvia azurea grandiflora produces graceful racemes of blue flowers, three feet tall, during the late summer and early autumn.

S. uliginosa is a most attractive plant and bears numerous sprays of pretty blue flowers from July to September on stems four feet tall.

S. virgata nemorosa is, perhaps, the most showy and attractive member of the genus, bearing numerous violet-blue flowers from June to August in the greatest profusion, while the leafy bracts are beautifully coloured until late in the autumn. Other showy and attractive Salvias are S. pratensis, S. Tenorii and S. Bertolonii. The beautiful Gentian-blue S. patens is unsurpassed for colour for summer flowering, but is not hardy, and the plants need to be lifted and stored in sand in a place where frost will not reach them.

Platycodon grandiflorum, the Chinese Bell-flower, is a splendid plant for the herbaceous border, having rich blue flowers that are beautifully netted with lines of a darker shade. It blooms during the summer, and the spikes grow to a height of one and a-half feet.

The Linums (Flax) include free blooming perennials of graceful habit, adapted for either the border or rockery, and the plants continue in flower over a long period. L. narbonense, L. perenne, L. austriacum and L. Lewisii are all good garden species.

Scabious caucasica, one of the most beautiful border perennials, develops, on tall stems, flowers of a delightful soft blue from June onwards.

Polemonium himalaicum, P. humile and P. confertum; are all worth planting.

Lupinus polyphyllus is an old and accommodating favourite with Pea-like flowers of a pretty blue shade and tufts of bright green foliage. If the first flowers are cut off a second crop will prolong the flowering period well into the autumn.

Of border Phloxes, Phlox decussata, the best varieties of blue and purple shades are Le Mahdi, Iris, Antoine Merci, Dr. Charcot, Garteninspector Krauss and Wm. Ramsey. Phlox canadensis, Perry's variety, is the most beautiful of all the dwarf Phloxes and should have a prominent place in all collections of hardy plants. The upright spikes, with corymbose heads of soft Plumbago-blue flowers, are not excelled in this family. The plant is of a strong growing habit and flowers most abundantly from the middle of April to July. Of the Alpine species and varieties of Phloxes the following are all good in shades of blue, lavender and purple: G. F. Wilson, subulata lilacina (see Fig. 12, p. 31) Stellaria, Violet Queen and Newry Seedling. These plants are also suited for the rockey as well as the front row of the herbaceous border. Lindelofia spectabilis (the Himalayan Hound's Tongue) bears erect racemes of drooping blue flowers with purple lobes and pretty heart-shaped leaves. A few other plants with blue or blue shaded flowers are Eryngiums, Hepaticas, Anemones, Geraniums, Funkias, Lavender and Lithospermum. *W. Logan.*

THE APENNINE WINDFLOWER.

ONE of our most delightful flowers for planting in grass is Anemone apennina, the Apennine Windflower, which even in a clump or two is very lovely, but in spreading sheets in the grass is of almost transcendent beauty One of the most delightful garden scenes I have observed was an orchard of Apple trees in full bloom, carpeted with many thousands of the blue flowers of Anemone apennina in the grass beneath. It was a scene never to be forgotten, although many years have elapsed since it was viewed with the keenest delight. I was equally enchanted with a wooded glen carpeted amid the short grass under deciduous trees by myriads of the lovely blooms of this Anemone.

This Windflower blossoms after the earlier A. blanda, and is much easier to cultivate in the garden, and will establish itself in many places where the Greek Windflower, as A. blanda is called, refuses to succeed. It presents no difficulty in a moderately light loam—in loam, leaf-mould and sand, or in sandy loam. It delights in the shade of deciduous trees, but does not object to sun. The plant grows only a few inches high and has prettily divided foliage and good-sized flowers of the most beautiful shade of blue, suggesting, as some have said, the wonderful colour of the skies above its native mountains. Personally I do not consider any of the varieties superior to the fine blue of the type, or what is known as such, but those who wish for variety may desire the others. There is, for example, the pretty white A. apeninna alba; there are several with shades of rose, which are sold under the name of A. a. rosea. There are also some lighter blue varieties, often to be found among mixed roots, but not usually distinguished by names. There is a very beautiful variety with purple blooms named A. a. purpurea. There is a double variety, A. a. fl. pl., with very light blue flowers, produced on rather long stems. Probably other doubles exist, and there is a white one—not yet on the market, I believe. The tubers should be planted at a depth of two inches, more or less, and six inches apart, to allow of room for increase, but if more immediate effect is required, they should be set only three inches apart.

SCOLYMUS HISPANICUS.

THIS is a very old plant belonging to a genus whose name at least has been known for centuries, it having been employed by Theophrastus, and is said to go so far back as Hesiod. The representatives of the genus in cultivation are few, and what is probably the best, Scolymus grandiflorus, does not appear to be in commerce in this country. S. hispanicus, however, the subject of this note, is offered and is easily raised from seeds, the only desirable method and, in fact, the sole means where, as in most places, it is only a biennial.

It has for popular names those of Golden Thistle and Spanish Oyster Plant, the former ecauste of the colour of the flower heads and bthe later because of its use, the roots being as good as those of Scorzonera, while the leaves and stalks are eaten as Cardoons in Salamanca. The flower-heads are put to baser purposes, being employed for the adulteration of saffron.

As a garden plant for ornament, Scolymus hispanicus is of some value for growing near the back of a large border, where it may be of service in August, when it blooms. In the wild garden, also, it looks well in large groups. It is rather coarse in the border, but its golden, Thistle-like flowers are of sufficient distinctness and value to justify its inclusion in a large border. Its height is from three to four feet, and the flower-heads, which are sub-aggregate, are in leafy spikes. The rather glabrous leaves are decurrent.

While some claim that S. hispanicus is a perennial, experience would point to its being treated as a hardy biennial, sowing the seed in June or July to raise plants for flowering the following year. It is not a choice, but a bold plant with considerable distinctness, and may claim the consideration of a good number of readers. *S. Arnott.*

AQUILEGIA CAERULEA.

THIS is "The Queen" of Columbines, and well adapted for growing in borders or rock gardens. It is a plant of vigorous growth, producing large flowers with the greatest freedom on short stems from May until the end of June, and in lesser quantities throughout the summer. The flowers are very showy, and a delightful shade of violet-blue and white. *W.*

FRUIT REGISTER.

EARLY PEARS.

THE annual cropping of the earliest dessert Pears should prove an inducement to those in charge of gardens to make more use of them. All the varieties mentioned below are of good quality, nice looking, and the trees very productive. They are best grown as cordons, bushes and half-standards.

Doyenné d'Ete is a small fruit of lemon-yellow colour, flushed red and covered with dots. The flesh is yellowish white, melting and juicy. This variety ripens in July, when it is an acquisition and should be included in every collection. From its early ripening it is known as Summer Doyenné.

The most prolific crops of this Pear I have seen have been on bushes worked on the Pear stock.

Beurré Giffard is a useful Pear of medium size. The skin is greenish yellow, mottled with red next to the sun; the flesh is white, melting and juicy, but the kind of soil in which the tree is planted has a great influence on the flavour. This Pear succeeds best on the Quince. It is a useful sort owing to its keeping longer than many other early and second early varieties.

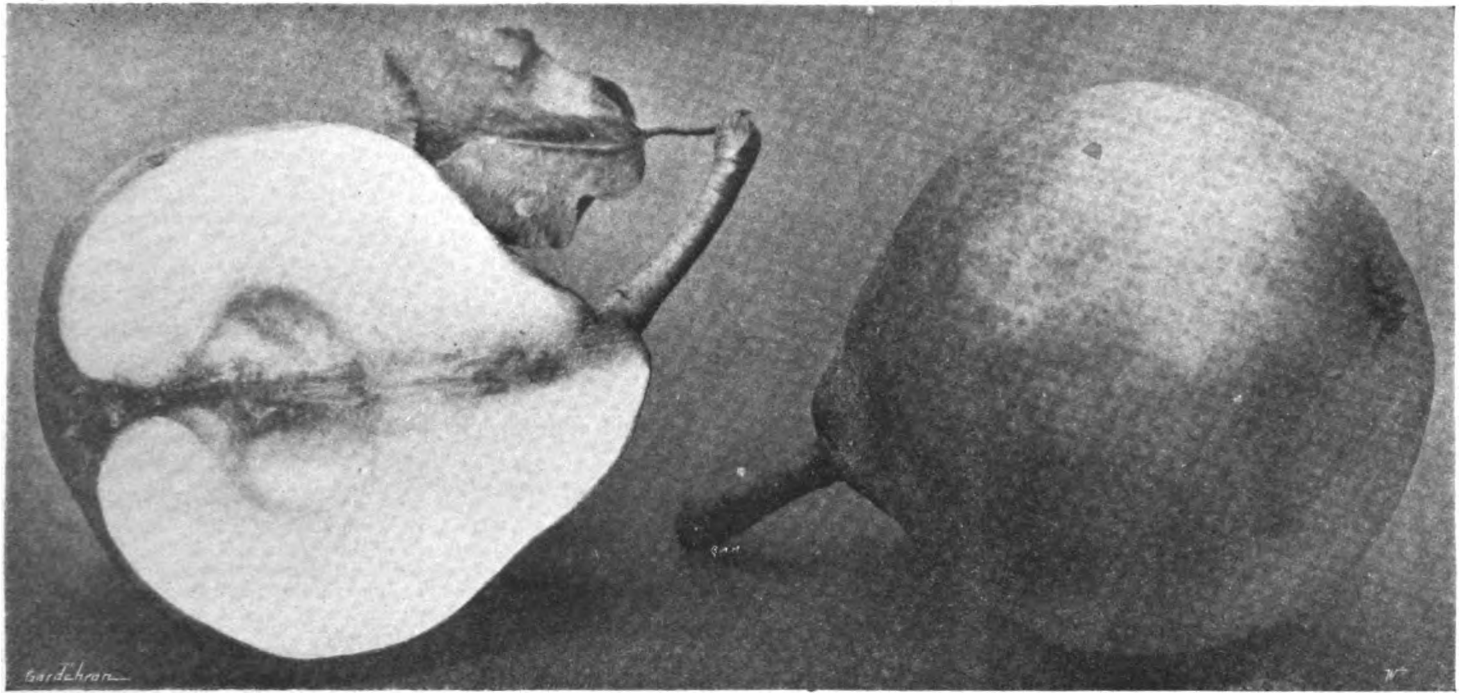

FIG. 16.—PEAR LAXTON'S SUPERB.

Clapp's Favourite is a handsome, medium-sized fruit, with a crimson cheek and scarlet stripes. It is one of the best Pears for early shows and is a dessert fruit of unquestionable excellence. The tree is hardy and productive. The flesh is sweet and juicy, but the fruits should be used at the moment they are ripe or they are apt to decay at the core. Laxton's Superb (see Fig. 16) may replace this old variety in years to come.

The newer variety was raised from William's Bon Chrétien crossed with Beurré Superfin, and received the R.H.S. Award of Merit on August 21, 1915. The fruit is shown natural size; the skin is greenish-yellow, flushed with red on the side next to the sun. The flesh is white, juicy and of excellent flavour.

Petite Marguerite stands out as a prodigious cropper and is a Pear of good quality for the dessert dish. The fruit is of medium size, greenish yellow in colour with a red cheek. The flesh is juicy, sugary and refreshing. This Pear is ready for use from early to mid-August and may be recommended for its earliness.

Citron des Carmes is a small, early Pear coming into use about the end of July. The skin is yellowish-green, shaded brownish-red next to the sun. The flesh is yellowish-white, juicy and refreshing, with a delicious aroma.

This variety succeeds best when double-grafted, or as half-standards. Beacon is a medium-sized Pear of true pyriform shape, useful for its earliness. The flavour is sweet and the tree is a prolific cropper

Triomphe de Vienne is a September Pear of great merit, being a free cropper, producing fruit of a suitable size for dessert and of first-rate flavour. The fruits are conical in shape, yellow in colour with russet markings and a red flush. The flesh is white, tender, juicy, melting and sugary. The growth of the tree is clean and the variety forms fruit spurs freely. It thrives in most kinds of soils and situations, in fact it is ideal for all systems of training and in all places.

Jargonelle which has been known in France since 1600 and has been cultivated for many years in this country, succeeds best as a standard or half-standard or as a trained tree on a wall. It is a very early variety and records tell us in 1727 it ripened fruit in England on July 21st, which is about three weeks earlier than we now have it, although I once saw some Jargonelle Pears gathered ripe on July 17th, the tree being trained on a wall, with a very wide bakehouse chimney.

"GREENING" VARIETIES OF APPLES.

THE "greening" varieties of Apples are noted for their free growth, prolific cropping and late keeping, three desirable qualities which should appeal to every grower who contemplates planting long-keeping, culinary Apples this spring.

These sorts produce remarkably fine crops when grown as bushes or half-standards, especially if the roots are dressed annually with basic slag or bone meal, and mulched with well-rotted stable manure. I have noticed that on the Paradise stock the "greening" varieties make a certain amount of strong growth, which needs to be curtailed by summer pruning. All fruit spurs in the inner parts of the tree should be removed as one bushel of choice fruit is worth more than a dozen bushels of inferior ones.

For orchard purposes trees on the Crab stock make strong, clean growth, and come into bearing relatively early.

In the year 1920 fruits of Winter Greening, an Apple which may be regarded as a winter, spring and summer variety, were brought for my inspection after they had been kept in a cold loft for two years. The name was given to me as John Apple or French Crab, for like many other old sorts, this Apple has five or six names.

The fruit is of medium size, roundish, with a few small ridges around the crown. The eye is small and closed: the stalk half-an-inch long and inserted in a round cavity. The skin is smooth and shining, dark green in colour, strewed with small, russety dots, and with just a slight flush on the side next to the sun. The flesh is greenish, close in texture, juicy, sharp, but of the true sauce-Apple flavour, and every garden should possess a tree or more of this ever-bearing, longest-keeping variety.

Yorkshire Greening, which is also known as Yorkshire Goose Sauce, is a fruit of first size, and will keep sound until February and March. This handsome Apple succeeds where many others fail, the tree being hardy and free of growth on the Crab stock. The skin of this Apple is very dark green, with a few faint stripes of red next the sun, and dotted with grey russet specks with greyish-brown russet over the base. It is an attractive fruit owin to its grey-down appearance. The flesh is greenish-white, firm, crisp and juicy, with a pleasant acidity. It makes a useful baking Apple owing to its large size and good cooking qualities and aroma.

Northern Greening is well known to most growers; in my early gardening days, I cannot remember having been in a garden without seeing this variety. Several years after, when I took charge of large establishments, it proved my mainstay for supplying Apples in May and June.

The skin is smooth, grassy green, with dull brownish-red on the exposed side next the sun. The flesh is greenish-white, tender and crisp, with a vinous flavour. The tree grows freely and to a large size; it is a good cropper. This variety is also known locally as John Apple and Walmer Court.

Gooseberry Apple, a variety well known in Kent and Sussex, and also in some districts of Hertfordshire, is a long keeper, in many cases keeping for a whole year. It is similar to all the "Greenings" in coloration, the skin being of a lively green, with a twinge of brownish-red next the sun. *Pomona.*

MARKET FRUIT GARDEN.

DUCKS IN GRASS ORCHARDS.

I am watching with interest a neighbouring grower's experiment in keeping down the grass in an orchard by means of pigs, hens and ducks, in separate pens. So far the ducks seem to be giving the best result. They keep the grass down most evenly. The pigs are apt to do patchy work and to root about and make mud baths in places. The light breeds of ducks are excellent layers, need only primitive housing, and are easily confined with quite low wire netting.

BLACK CURRANT TROUBLES.

A reader of this journal who is a practical gardener of experience has written to me an interesting letter describing treatment which he has found to be useful in dealing with bud mite and reversion in Black Currants. For bud mite he smears the branches with wagon grease just as the buds begin to swell in early spring. A piece of flannel is heavily greased and drawn up each branch. The object, of course, is to trap the mites when they attempt to migrate from the old "big buds" to fresh ones. The plan, he says, has been successful, the bushes which were in a poor state now yield heavily. I have seen this treatment advised before, and it always appealed to me as likely to succeed; but I have not tried it. In gardens it would be well worth trying, but the greasing would be a big job on, say, twelve acres of large bushes. If, however, it is a successful remedy, it might be possible for some chemist to give us a sticky wash which could be sprayed on and which would answer the same purpose.

My correspondent's method of avoiding reversion is to strike his cutting in the summer months, preferably in early August (in Scotland). He states that 100 per cent. will strike if properly handled. Presumably such cuttings should be taken only from fruiting bushes that are free from sign of reversion. It is difficult to imagine why this plan should succeed, but anything is worth trying in connection with this serious trouble. *Market Grower.*

CULTURAL MEMORANDA.

RASPBERRIES.

The difficulties many find in establishing Raspberry stools prompts me to offer a few remarks on the subject

Early planting is essential. Prepare a slightly raised position for the reception of the plants, and spread the roots horizontally in planting them. Plant firmly in soil that is in good heart, but leave the top spit loose on the surface.

A well drained soil is essential, as stagnation at the roots is fatal to success with Raspberries. Cut down the newly planted canes about April to twelve or fifteen inches from the ground, and mulch the plants with short stable manure or farmyard dung.

The new growths should be making headway by Mid-July, and a soluble stimulant applied then will be beneficial; it should be used just before a shower of rain and may take the form of sulphate of ammonia or nitrate of soda, used at the rate of about one ounce to four linear yards of row. To those who have established beds, the same amount of the above fertilisers may be applied just after the berries are set, as this will stimulate the new growth, and favour the swelling of the berries. Dusting the tops of the new growths with flowers of sulphur when they are about six inches long, will assist in keeping the plants vigorous and healthy. The following varieties are suitable for all purposes: Superlative, which produces large, conical berries of a dark red colour and very sweet. This sort stands the weather well and is a success when well cultivated.

Hornet is a stout stemmed variety and a healthy grower, producing dark red, sweet berries.

Park Lane is of recent introduction and of good repute. The berries are very large and produced on branches all down the stem.

Lloyd George is a remarkable new variety: it crops continuously and is a variety of great utility.

Pyne's Royal is a large fruiting variety of recent introduction. The canes are strong, the fruit firm, solid, juicy and of excellent flavour. This also is a variety of great promise. *Pomona.*

HOME CORRESPONDENCE.

Names Used by Dr. John Hall.—Those who have a fair acquaintance with British plants will not have much difficulty in identifying the names used by Dr. Hall of Maidstone (see p. 6): but if they do prove a little troublesome, a good encyclopaedic dictionary of the English language will suffice to put the reader on the track of most of them. One of the most difficult for me was Synkefelde, but this is also spelt Synkefoyle, and Sinkfield, and merely means Cinquefoil, or Potentilla. Cammock was a name applied to various plants, including Ononis repens, Hypericum perforatum, and Achillea Millefolium, but as Dr. J. Hall mentioned the two latter under different names he most likely meant the first. Tutsain, Hypericon, and Asciron are all names for species of Hypericum, which could easily be found in the chalky soils near Maidstone, or the Asciron in a wet meadow. The Lunary and Serpent's Tongue were the Ferns, Botrychium Lunaria and Ophioglossum vulgatum, both wet meadow plants. Adder grass was a species of Orchis (Cynosorchis of John Gerard), with a similar habitat. As a wild British plant, Procerpinaca could only have been Myriophyllum of ditches and pools, and allied to Proserpinaca and Hippurus, and could well have been found in the wet parts of the Medway valley, especially before the river was so much canalised as at present. The wild Vine may well have been Clematis Vitalba or the Black Bryony, seeing that one Bryony was mentioned, and presumably the White one. The Canterbury Bell was Campanula Trachelium in John Gerard's day, while C. latifolia and C. glomerata were other species of it. The Canterbury Bell (C. Medium) so named to-day, was Blue Coventry Bells in Gerard's time. *J.F.*

Young Lads and Horticulture.—(*See* p. 379, vol. lxxiv). With regard to the opening for lads in horticulture, the gardening profession is certainly not so attractive to boys as it was twenty years ago. Many large residences are now unoccupied, and other big establishments have only sufficient staff to keep the gardens and pleasure grounds from absolute ruin. I scarcely know of a single garden where a reduction of the garden staff has not taken place. Many of the plant houses are run without any fire-heat. Tomatos are grown instead of stove plants until they have been overdone. Many portions of the pleasure grounds are allowed to remain uncared for; the bothy is no longer used as such, and in most cases the head gardener is the hardest worked man in the garden. In many places the surplus produce is sold, and the gardener, instead of specialising, has to raise all the crops he can to sell. I know of many places that are closed and the well-trained gardeners who formerly worked in them are now doing jobbing gardening in the local village. When a gardener falls out of employment he is lucky if he obtains a new situation, especially if he is advanced in years. Increased death duties, higher income tax and similar increases in expenses fall heavily on employers who are garden enthusiasts. A lad with the abilities requisite for the making of a capable gardener would be well advised to use his talents where he would not be so much dependent on circumstances of others, though we all regret the decline in gardening. The wages of gardeners have not advanced in proportion to those of others, and a gardener has no security of employment and no pension. The gardening outlook for energetic young men is not at all bright. *Constant Reader*

Manuring.—As most gardeners and farmers are faced with the problem of obtaining sufficient farmyard or stable manure, I venture to suggest that it is not advisable, from an economic point of practice, to turn manure heaps regularly. As a result of frequent turnings a larger quantity of the volatile elements of the manure is given off into the air and lost. So far as possible we do not allow any rain to reach our stores of the animal excreta; all heaps are covered in to prevent an undue quantity of the moisture draining into and causing the tanks to overflow, and thus getting lost in the drains. I will be grateful for opinions as to whether this is sound practice. *J. E.*

Weather Lore.—I agree with Mr. Arkwright in his Yorkshire Weather Lore (p. 12), and we have a corresponding saying in the West Country to the effect, that if ice will carry a man before Yule it will not carry a duck after it. But what we regard as "feeding a frost," is a prolonged series of frosty mornings alternating with mild intervals, and that has been our experience during the present season. The mercury has registered eight and nine degrees of frost on two nights, but we have had no ice sufficient to carry a man. *Herbert Maxwell, Monreith.*

—In regard to Sir Herbert Maxwell's Weather-lore (p. 12), and Mr. W. Arkwright's Yorkshire saying, I gather from the former that we may expect hard and severe weather, while the latter is hopeful the worst is past. I believe each severe winter has—so far as records go—been preceded by much rain, as also instanced in *The Natural History of Selbourne*, by the Rev. Gilbert White, and as we have had 6·33 inches above the average rainfall, it appears possible that the Scotch weather wisdoms may be right. Personally, I have found weather-lore, something like folk-lore; the saying of one locality is contradicted in another. For example, "Happy the wooing that's not long adoing," and "Marry in haste, repent at leisure." *J. E., East Grinstead.*

Club Root.—In some districts Club Root is a very troublesome and persistent pest, particularly on land recently broken up for garden plots, and I think this is due to the neglect of liming by many farmers, mainly because of the expense. My experience is that Club Root can be prevented, but it requires time, patience and perseverance. Lime should be applied at the rate of one to three pounds per square yard according to the depth of soil and its acidity. Good cultivation should follow and the surface soil kept well stirred. Plenty of lime should be used on the seed bed, and when planting all Brassicas a handful of wood ashes should be placed in each hole as the work of planting proceeds. *Acorn.*

Vine Border Extension.—When planting young vines I generally make the new border about 3 feet 6 inches wide, adding about 2 feet to the width each year, until the whole of the border is completed. Young vines that were planted last year, and have made satisfactory growth, will have filled the border allotted to them with roots. A good mixture for extending the border, consists chiefly of good loam, and to every cart-load of loam add two bushels of charcoal, one bushel of ½-inch bones, half a bushel of coarse bone meal, with sufficient mortar rubble and burnt earth added to render the mixture porous. Do not employ animal manures or artificial fertilisers; these are best applied when the vines are in active growth. When widening the border, turves cut in 6-inch squares will form a good supporting wall to the new soil, and these turves should be removed when adding again to the border. *P.*

SOCIETIES.

ROYAL HORTICULTURAL.

January 15.—The first Royal Horticultural Society's meeting of the year, held at Vincent Square, was favoured by fine weather. The exhibition was a good one for such an early date and the attendance was excellent. Orchids, Carnations, shrubs, Cyclamens and vegetables were the chief subjects on view.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), and Messrs. Gurney Wilson (hon. secretary), C. J. Lucas, R. Brooman White, Arthur Dye, H. T. Pitt, H. G. Alexander, Fred. K. Sander, Henry H. Smith, J. Cypher, Chas. H. Curtis, W. H. Hatcher, John Cowan, J. E. Shill, Frederick J. Hanbury, T. Armstrong, E. R. Ashton, W. J. Kaye, Stuart Low and James O'Brien.

First-Class Certificates.

Cypripedium Memoria F. M. Ogilvie var. The King, from G. F. Moore, Esq., Chardwar, Bourton-on-the-Water. A noble Cypripedium of great size and fine shape. The large dorsal sepal is white on the upper half with a pale green base and heavy blotching of claret colour. The broad petals are tinged with red-brown.

Odontioda Columbia, from Messrs. Charlesworth & Co., Haywards Heath. One of the finest of deep cinnabar-scarlet Odontiodas, the flowers being large and of perfect shape.

Awards of Merit.

Cymbidium Queen of Gatton (insigne × Lady Colman) from Sir Jeremiah Colman, Bt., Gatton Park (gr. Mr. Collier). This strain of Cymbidium, raised at Gatton, is a general favourite. The present form has large, rosy-lilac flowers with thin purplish lines and purple markings on the lip.

Cypripedium Charlotte Dillon, Chardwar var. (Lady Dillon × Pyramus). A remarkable Cypripedium with a large, white, dorsal sepal with an emerald-green base and heavy blotching of dark claret; the broad petals and lip are tinged with mahogany-red.

Cultural Commendation.

To W. J. Vaish, Esq., Salisbury, for a splendid specimen of Cypripedium Leeanum clinkaberryanum with thirteen flowers.

Groups.

Messrs. J. and A. McBean, Cooksbridge, were awarded a Gold Medal for a grand group specially noteworthy for the many handsome Cymbidiums and Odontoglossums shown in great beauty in the month of January. Among the Cymbidiums was C. Floryi (eburneo-Lowianum concolor × grandiflorum), a noble flower, and among the Odontoglossums, O. St. Elmo var. delectum (Admiral Sturdee × crispum Empress of India), a large, finely-formed and richly-coloured flower the best of its class; O. crispo-Solon varieties, O. Marian, and a richly-coloured form of O. Tityus were superb, while the pure white forms of O. crispum, O. eximium, O. amabile and O. ardentissimum were great features in the group. Amongst those with coloured flowers, Sophro-Laelio-Cattleya Isabella splendens, which has a very large flower tinted salmon-rose and with a ruby-crimson lip was specially fine. Among the species was a plant of the extremely rare Dendrobium Ashworthiae with two spikes of pretty, cream-white flowers.

A Silver-gilt Flora medal was awarded to H. T. Pitt, Esq., Rosslyn, Stamford Hill, for a very interesting group containing fine Cymbidiums, Odontoglossums and Odontiodas at the back, and a fine display of Cattleyas, Laelio-Cattleyas and Cypripediums. Specially noteworthy were Odontoglossum crispo-Solon, Pitt's variety, the best of this superb cross. Among the species shown was the provisionally-named Epidendrum stamfordiense (not to be confused with the fine old E. stamfordianum) of the same class as E. Endresii, but with greenish sepals and petals.

Sir Jeremiah Colman, Bt., Gatton Park (gr. Mr. Collier), was awarded a Silver Flora Medal for a pretty group in which the Gatton forms of Cymbidium Queen of Gatton with flowers varying from blush white with pink lines to rose with purple lines and crimson markings on the lip were object lessons in variation from the same cross. Handsome forms of Lycaste Skinneri, for which Gatton is noted, and Gatton Odontoglossums, with some rare species were well displayed.

A Silver Flora Medal was awarded to Messrs. Cowan and Co., Southgate, for an effective group of Brasso-Cattleyas, Laelio-Cattleyas and Cypripediums; C. Alexanderi is one of the finest of its class in every respect; Cymbidium Ostrich has probably never been shown so well before.

Messrs. Sanders, St. Albans, had a showy group in which Cymbidiums and Odontoglossums were features. Odontglossun crispum var. Dulce was far superior to any imported form, whilst other home-raised crispums were especiall good. Laelio-Cattleya Royal Sovereign (St. Alban × luminosa) with rich golden yellow flowers and claret-purple lip is a grand Orchid. Among the species a fine plant of the true Saccolabium bellinum was noted.

Other Exhibits.

Lt.-Col. Sir Geo. L. Holford, Westonbirt (gr. Mr. H. G. Alexander) showed Cypripedium Bendigo (Niobe × Bronzino), a very pretty hybrid with its first flower, the dorsal sepal of which is bright rose with dark lines, the petals and lip being tinged with purplish brown: it is a distinct hybrid.

Messrs. J. Cypher & Sons had a group of Cypripediums, the plants being splendidly grown and flowered.

Messrs. Stuart Low & Co., Jarvisbrook, showed a good selection of hybrids including a very handsome rose-coloured Brasso-Cattleya.

Floral Committee.

Present (A Section): Messrs. H. B. May (in the chair), J. F. McLeod, A. Turner, J. M. Bridgeford, H. J. Jones, John Heal, M. C. Allwood, W. Howe, E. R. Janes, J. B. Riding, W. B. Gingell, W. Stephens, D. B. Crane, Chas. E. Pearson, H. R. Darlington, Donald Allan and E. A. Bowles.

Present (B Section): Messrs. W. J. Bean (in the chair), R. C. Notcutt, G. Yeld, R. W. Trotter, Sydney Morris, F. G. Preston, Arthur Bedford, G. Harrow, T. Hay, G. Reuthe, H. V. Warrender, Reginald Cory, W. G. Baker, and Sir William Lawrence.

Award of Merit.

Chrysanthemum H. W. Pieman.—An effective, loosely incurving Japanese variety of rich golden-yellow colouring, and obviously a useful variety for late flowering. Shown by Messrs. Wells & Co.

Groups.

One of the most attractive displays was that staged by Messrs. Blackmore & Langdon, who showed their magnificent varieties of Cyclamen in perfect condition. Their giant strains were represented in white, salmon, and crimson colours, the petals measuring as much as three inches long, and from one-and-a-half to two inches broad. Other varieties included Scarlet King, Grandiflora, white with conspicuous rose-purple centre, and Mrs. Buckston, a flower of pink colour with fringed petals. (Silver-Gilt Banksian Medal).

Just inside the entrance Messrs. Wm. Paul, Ltd., showed a collection of well-flowered Camellias in pots, and the principal varieties of the twenty or so shown included Princess Charlotte, double white; The Swan, single white with bright yellow stamens; alba simplex Morse's variety, single white; Jupiter, a new seedling of fiery scarlet colour; Mars, single rose-carmine; and L'Avenir, a good double bloom of deep rose-pink colour (Silver Banksian Medal).

Messrs. L. R. Russell, Ltd., were responsible for an interesting group of greenhouse and stove plants and of particular merit was the flowering specimens of Anaectochilus Dawsoniana; rarely have we seen this plant shown in such good form, the white flowers being borne on spikes nearly a foot in height, the beauty of which were further enhanced by the highly coloured bronze-red foliage. Other interesting plants included in the group were Pycnostachys Dawei, with blue flowers, Tillandsia Lindenii Davali, Francisia calycinum major, Epiphyllum Makoyana, the quaint Manettia bicolor, and some excellent pot-grown specimens of Lapageria rosea. At one end of the group Azaleas and Hamamelis mollis and H. arborea were shown in full flower (Silver Banksian Medal).

From Messrs. Stuart, Low & Co. came a very good display of perpetual-flowering Carnations, and amongst this pleasing group were excellent vases of White Pearl: the new Hon. Nita Weir, salmon-pink; Duchess of York, deep pink; Topsy, a new introduction from America, the colour being a bright crimson and flowers of large size; Arnos Grove, mauve; and Violet Mond, of deep heliotrope-purple colour. The same firm also staged a collection of greenhouse plants, and included such subjects as Acacia platyptera, A. Baileyana, Eranthemum pulchellum, blue; Toxicophlaea spectabilis, a highly fragrant white-flowered shrub: and a pleasing strain of Primula obconica Bush Hill Park, with lavender-blue flowers (Bronze Banksian Medal). A very good collection of Carnations was also shown by Messrs. Allwood Bros., and contained blooms of very high quality. Included amongst these were the varieties George Allwood, a large flower of blush-salmon colour; Laddie, salmon-pink; Jessie Allwood, yellow, and Edward Allwood, scarlet, together with a small collection of named varieties of their well-known Dianthus Allwoodii (Silver Banksian Medal).

Mr. C. Engelmann contributed a stand of Carnations arranged in attractive vases, varieties of special merit were Cupid, salmon-pink; the new variety Donald, crimson; Belle Washburn, scarlet; Maine Sunshine, yellow; and Enchantress Super Supreme, light salmon-pink (Bronze Banksian Medal).

Forced bulbous flowers comprised the group from Messrs. R. G. Cuthbert, Ltd., and a special feature was made of Freesia Excelsior, a white variety with large flowers produced on long stems. Interspersed amongst this subject were pots of prepared Hyacinths; some very fine blooms of Iris tingitana were also displayed (Bronze Banksian Medal).

A very imposing group of cut spikes of Euphorbia pulcherrima was staged by the Hon. Vicary Gibbs (gr. E. Beckett), Aldenham House, Elstree, and attracted much attention. The type was represented by large heads of scarlet bracts and the white form (E. p. alba) and the salmon-pink variety (E. p. rosea carminea) were equally well grown. The back-row specimens of the type carried the finest heads we have seen this season (Bronze Banksian Medal.)

Among hardy plant exhibits, Mr. G. Reuthe staged a table group of evergreen shrubs and Conifers, and included amongst the former was a flowering specimen of Berberis japonica hyemalis, a beautiful shrub with long racemes of pale yellow fragrant flowers. Narcissus Bulbocodium Clusii, with white flowers, and Iris Vartanii, with pale-blue flowers, were two bulbous plants shown in flower and both highly suitable for a sheltered corner in the rock garden (Bronze Banksian Medal). Hardy flowers were also displayed by Messrs. Skelton and Kirby, who showed a very bright group of Iris unguicularis together with Saxafraga Rocheliana, Erica carnea, Gentiana acaulis and other rock garden plants (Bronze Banksian Medal).

Mr. F. G. Wood gave prominence to the Marsden Alpine Gardens, which are suitable for table decoration, and also grouped Sedum Palmeri and Primula capitata mooreana amongst the collection of Conifers and other plants.

Messrs. William Cutbush and Son also staged a rock garden, suitably planted with goodly masses of Helleborus niger major, Saxifraga Elizabethae, Iris alata, and ornamental and berried shrubs (Silver Banksian Medal). The Misses Hopkins staged a small rock garden, and a group of Violets were exhibited by Mr. B. PINNEY, and included the new variety, Tina Whitaker, which possesses large, lavender-white flowers borne on long stems.

Messrs. CARTER PAGE, LTD., were represented by a neat rock-garden display which was planted with such choice subjects as Primula Juliana, Crocus susianus, C. Sieberi, Cyclamen Atkinsii and the rose-coloured form C. A. rosea.

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (Chairman), J. Cheal, W. Poupart, Geo. F. Tinley, S. B. Dicks, W. F. Giles, T. Pateman, G. Reynolds, E. Beckett, F. Jordan, H. Prince, Geo. Kelf, W. H. Divers, H. V. Taylor, W. Lobjoit, E. A. Bunyard, A. N. Rawes and H. S. Rivers.

A Silver-gilt Knightian Medal was awarded to Messrs. SUTTON AND SONS for a collection of vegetables comprising ninety distinct kinds and varieties. This was one of the most imposing collections in the Hall, and the manner in which the various subjects were staged is deserving of special praise. All the dishes in this excellent collection were of splendid quality, and it is rarely that such a fine group of vegetables is staged at an exhibition in January. The root vegetables were splendid and included some very excellent specimens of Long Red Surrey, New Red Intermediate and Scarlet Intermediate Carrots, Hollow Crown and Tender and True Parsnips, and the Sutton Globe Beet. The Leeks were of the largest size and well blanched; they included such varieties as Acquisition and Royal Favourite Onions were represented by good bulbs of Sutton Globe, Selected Ailsa Criag, Blood Red, and Reading. Of green vegetables there were splendid Brussels Sprouts and New Year and Late Drumhead Savoys. Some of the most popular and useful varieties of Potatos were staged and there were also Celeriac, Chicory, Garlic, Scorzonera, Sea Kale Beet, Mustard and Cress, Mushrooms, Chinese Radishes, Stachys tuberosa and many other vegetables.

Messrs. G. BUNYARD AND CO., Maidstone, again exhibited a selection of the best Apples in season. The sorts displayed on this occasion were Hormead's Pippin, Claygate Pearmain, Mère de Ménage, Blenheim Pippin, Lane's Prince Albert, Cockle Pippin, Bramley's Seedling, Baumann's Red Winter Reinette, Newton Wonder, Belle de Boskoop, Allington Pippin and Bismarck. The fruits of Allington Pippin were unusually fine, whilst those of Lane's Prince Albert were very highly coloured.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, December 13: *Committee present:* The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, A. G. Ellwood, J. Evans, W. Giles, Capt. W. Horridge, J. Howes, J. Jackson, A. Keeling, D. Losh-Thorpe, J. Lufton, E. Thompson and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Odontonia Dora, Haddon House var. (M. Bleueana Pitt's var. × Odm. Dora), a large flower of fine shape, the sepals and petals coloured old rose; the lip is a paler rose-orange, the disc being interlined with rose. *Odontoglossum crispum Zev*, a flower with white sepals and petals of fine substance. From P. SMITH, Esq.

Cypripedium bourtonense var. Invincible (Harefield Hall × Blanche Moore), a large flower of good shape. From S. GRATRIX, Esq.

AWARDS OF MERIT.

Cypripedium Peter Pan (Alcibiades illustris × Peter); C. Robin (Marina × Thompsonianum); C. Actaeus Phantasy (Glorita × Actaeus Bianca); C. Cappa Magna Miss Dorothy Sharpe. From S. GRATRIX, Esq.

Cypripedium Christopher, West Point var. From MRS. GRATRIX.

GROUPS.

S. GRATRIX, Esq., West Point (gr. Mr. J. Howes), staged a group of miscellaneous Orchids to which a large Silver-gilt Medal was awarded.

A Silver-gilt Medal was awarded to A. HANMER, Esq., Buxton (gr. Mr. G. Giles), for a miscellaneous group.

Messrs. CYPHER AND SONS, Cheltenham, were awarded a Silver-gilt Medal for a group.

THE ORCHID CLUB.

THE meeting of the Orchid Club held on January 11 was noteworthy for the fine varieties of Cypripediums and Odontoglossums displayed and for the excellent staging of the groups.

At 3 o'clock Professor F. E. WEISS, F.R.S., gave a short account of the "Various Epiphytic adaptations of Orchids," discussing the chief morphological changes which have enabled primitively terrestial plants to assume the epiphytic habit.

The Committee has adopted the colour chart, *Code de Coleurs*, Klincksick et Valett, Paris.

AWARDS.

PREMIER DIPLOMA.

Odontioda Hardyana (parentage unknown) from FRED. HARDY, Esq. The flower is 3½ inches across the petals, and has the outline of a good crispum. The sepals are flat and of a solid uniform orange-red colour (orange-red, *Code de Coleurs* 77), the petals are flat, well displayed and of a solid uniform terra-cotta-red (red 29 *C. de C.*) with a white, dentate margin. The well-formed lip is similar in colour and margination to the petals. The plant carried a full spike of eleven beautiful flowers.

DIPLOMA OF MERIT.

Cypripedium Perseus (Alcibiades illustris × Lady Dillon), a well-formed flower of good proportions. The dorsal sepal is flat and well displayed, 3¼ inches trans-diameter, ; the basal portion chocolate-red with dots and lines of crimson radiating on to the white ground, leaving a clear marginal zone. The petals and lip are well displayed and chocolate-red in colour.

C. Nirvana (Alcibiades × aureum virginale) shown by Sir W. THOM. A large flower, the dorsal sepal is 3¼ inches in diameter, white with a greenish yellow luna. The greenish yellow petals and pouch are both well displayed.

C. Benjamin Goodfellaw (parentage unknown). From B. J. BECKTON, Esq. The dorsal sepal is 3 inches in diameter, circular in outline and of good substance; the central area is light green with radiating lines of chocolate spots and a broad, clear, white margin. The petals are 1½ inch wide; light yellow, with a strong central band of chocolate and faint chocolate reticulations.

GROUPS.

FRED. HARDY, Esq., Ashton-on-Mersey (gr. Mr. C. Branch), showed a group of superbly flowered Odontoglossums and Odontiodas. A fine var. of Laelio-Cattleya Linda occupied a central position.

Dr. CRAVEN MOORE, Manchester, showed a selection of Cypripediums.

A. T. CUSSONS, Esq., Kersal (gr. Mr. F. Cookson), exhibited an interesting and well-arranged group in which various Cypripediums, Calanthes, Restrepias, and the pretty little Epidendrum polybulbum were included.

B. J. BECKTON, Irlams o' th' Height (gr. Mr. W. A. Stewart), staged a group of Cypripediums.

Sir WILLIAM THOM, Blackburn (gr. Mr. R. Williams), showed a few well-grown Cypripediums, including Nirvana, Moonbeam and Britain's King.

J. H. WALKER, Esq., Eccles (gr. Mr. G. Weaver), showed a few select varieties of Cypripediums.

Messrs. A. J. KEELING AND SON, Bradford, showed a magnificently staged group of mixed Orchids.

Obituary.

James Child.—The death of Mr. James Child takes from our midst one of the best and most skilful of the old school of gardener. Beginning his career at Claremont, Esher, as an apprentice, he eventually rose to become foreman in those gardens and from there he took the head gardener's post to Lord Onslow at Sunbury. He also served with the Prince de Jouiville at Twickenham, to whose estate Queen Victoria was a frequent visitor, and at a later date became head gardener at Garbrand Hall to Mrs. Morr. It was during his stay of fifteen years in that post that he proved himself to be one of the foremost plant growers and exhibitors of his day, being very successful with both soft and hard-wooded subjects, and gaining the Veitch Memorial Medal on one occasion for the "best specimen plant in the show." Garbrand, under his care, was one of the best kept gardens in the country; every detail was exact, tidiness ruled in every direction, and cultural skill and artistic work was everywhere in evidence. When, eventually, Garbrand changed hands, and the collection of plants sold, Mr. Child went to Houndswood, near St. Albans, where he served with Mr. Baillie Hawkins for five years, retiring then to take up residence at Epsom, in which town he has lived for the past thirty years. During the War he was appointed Horticultural Instructor to the Epsom Rural District Council. A man of quiet, retiring disposition, he was held in the highest esteem by all those who came in contact with him, and his character was made up of the most sterling qualities, not the least of these being his ever readiness to assist others who were striving to make progress in the horticultural world. Mr. Child passed away at his residence on the 4th January at the age of eighty-five, and the funeral took place at Epsom Cemetery amidst every token of respect and esteem. He leaves three sons and two daughters, his wife having predeceased him about two and a half years ago.

William Smith.—Many gardeners will regret to learn of the death of Mr. William Smith at the advanced age of 93 years, which took place on January 7. Mr. Smith served a long term of employment with the well known family of the Rathbones, of Greenbank, Liverpool. His years of service with this family numbered no fewer than sixty-four. Mr. Smith was presented with an address of appreciation by W. Rathbone, Esq., in 1899, on completing 45 years as head gardener, and he retired in 1918. Mr. Smith was an excellent gardener, and was noted particularly for his successes with Rhododendrons and hardy fruits, notably Peaches. He was for many years a supporter of the Royal Gardeners' Benevolent Institution.

Charles Lawton.—Mr. Charles Lawton, who died on the 11th inst. at the age of 79, was for a long period head gardener at Welton House, Brough, Yorkshire, a position from which he retired in 1916. During the forty-six years of service in these gardens he gained many friends in the horticultural world, and became well known as a successful exhibitor at the leading shows, including York and Selby. He also acted as a judge at Shrewsbury, Doncaster and Gainsborough, and was always ready to help in horticultural matters. He took a great interest in sport and was secretary to Welton Cricket Club for many years. He also acted as a sidesman at Welton Church and furthered the work of the local Friendly Societies. Mr. Lawton leaves a family of three sons and one daughter.

GARDENING APPOINTMENT.

Mr. C. Herridge, for five-and-a-half years Gardener to W. A. Harper, Esq., and Sir Robert M. Kindersley, consecutively at Plaw Hatch Hall, Sharpthorne, Sussex, and previously with J. S. Tooker, Esq., at King's Beeches, Ascot, and John Drake, Esq., at Batch Wood Park, St. Albans, Hertfordshire, as Gardener to Mrs. Sawbridge, Denford, Hungerford, Berkshire. (Thanks for 8/- for R.G.O.F. Box.—EDS.)

THE
Gardeners' Chronicle

No. 1935.—SATURDAY, JANUARY 26, 1924.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.2°.

Actual Temperature:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 23, 10 a.m.: Bar, 32°; temp. 46°. Weather—Rain with overhead fog.

Eelworm Disease of Potatos.

Dr. T. Goodey's interesting paper on the "Eelworm Disease of Potatos caused by Tylenchus dipsaci* is, so far as can be ascertained, the first record of the disease in England. Tylenchus dipsaci (which is synonymous with T. devastatrix) is responsible for much damage amongst such crops as Narcissi, Onions, and cereals. It is evidently capable of causing serious loss amongst Potatos, but, happily, its ravages appear to be restricted to certain varieties. The disease was described by Kühn in 1888, and Ritzema Bos gives a detailed account of the pest, together with some experimental work, under the heading of "La maladie vermiculaire des pommes des terres" in his monumental work *L'Anguillule de la Tige et les Maladies des Plantes*, published in 1892. Affected tubers in many ways resemble those affected with "blight" (Phytophthora infestans); so much so, indeed, that the presence of parasitic eelworms has escaped the notice of certain experts in diseases of this crop. Dr. Goodey has made his observations of the disease in a field in South Lincolnshire, which carried a badly diseased crop in 1921. In 1922, the field was cropped with Oats which were quite healthy, and again planted in 1923 with two varieties of Potatos—Arran Chief and King Edward. The haulm and foliage of both varieties were to all appearances in a fine healthy condition of growth, and close examination revealed no distortion or curling such has had previously been recorded by Ritzema Bos in his publication cited above. When, however, plants of Arran Chief were lifted, the tubers showed marked symptoms of the disease in several stages of progress, and there was every indication that the eelworm was attacking the tubers direct from the soil and not by way of the plant. On the contrary, the variety King Edward showed high powers of resistance, and only two slightly affected tubers were found after digging twelve roots, some of which were growing in close proximity to the highly - susceptible variety Arran Chief. As already stated, the symptoms of the disease resemble those of "blight" and at first takes the form of small discoloured areas on the surface of the tuber. These increase in size and when the Potato is cut the diseased areas are seen to extend for a short distance into the substance of the tuber as a brownish discolouration. Mites and saprophytic eelworms then take possession and help to hasten the decay of the tuber. As control measures, Dr. Goodey suggests that only those varieties which have proved to be unaffected by the disease should be grown. As yet we have very little information on that point and we hope the author will undertake varietal trials so as to ascertain which varieties are immune and which are susceptible. In the Fen country, where the Potato is the main agricultural crop, we believe that the variety Arran Chief is rapidly passing out of favour as a main crop white; it takes "blight" readily and it may be—as we now learn it is highly susceptible to eelworm attack—that the presence of this new trouble may have accounted in no small measure for the loss in popularity of this variety, although growers have evidently been regarding the two diseases as one and the same thing. Care also should be taken with the "seed" and only sound tubers planted, and where the disease is present, special precautions should be taken in lifting the crop to ensure that no diseased ones are left in the soil to perpetuate the malady. Dr. Goodey also suggests the use of a machine devised by Richards and Guiness for the heat-treatment of the affected soil. It is well known that eelworms in general will not withstand a high temperature, and this machine is capable of lifting the top six or nine inches of soil, breaking it up, partially sterilising it by means of a blast of hot gases, and then dropping it again. The machine has been found capable of effecting this process in the field, but has never been placed on the market. It is not possible to state how long the eelworms can remain active in the soil, but it is worthy of note that a period of from three to four years is sufficient to starve out the "Narcissus" eelworm in highly infected soil, provided, of course, that the host plant does not occupy the land within this period. That the "Potato" eelworm can be a serious menace is evident, for Dr. Goodey writes: "The Potatos examined had been taken from pits in which practically all the stock had rotted so rapidly that only a small proportion could be saved, and this was unsaleable for human consumption."

Relief Work in the London County Council Parks.—In consultation with the Special Committee on Unemployment, the Parks and Open Spaces Committee of the London County Council has prepared a list of works that can be undertaken in the Council's Parks and Open Spaces with the object of providing additional employment during the current winter. The cost of the works is estimated at £22,675, of which approximately £4,675 will be incurred in the financial year 1923 4.

The New Government.—The chief appointment in the new Government of interest to gardeners, is that of Mr. Noel Buxton as Minister for Agriculture. Mr. Buxton has taken a great interest in the agricultural industry, and has formed a Farmers' Co-operative Society. He is a strong supportor of the Small-holding Movement and an advocate of a minimum wage for agricultural workers. One of Mr. Buxton's principal recreations is gardening. Mr. J. R. Clynes, who has been appointed to the important office of Lord Privy Seal, was Food Controller during the war, when such rural industries as farming and market gardening, and the cultivation of allotments enjoyed the greatest prominence in the economy of the nation. Sir Sydney Olivier, the new Secretary for India, was formerly Governor of Jamaica and subsequently Permanent Secretary of the Board of Agriculture. Mr. C. P. Trevelyan, the new Minister for Education, comes of a family greatly interested in horticulture and is himself a keen gardener; his father was for many years a member of the National Sweet Pea Society and his gardens at Wallington, Northumberland, are amongst the finest in the north. Colonel G. Josiah C. Wedgwood, Chancellor of the Duchy of Lancaster, is descended from one of the founders of the Horticultural Society—now the Royal Horticultural Society—and his interest in land questions is shown by his pamphlets on Land Values.

Potato Yield and Quality Trials.—The National Institute of Agricultural Botany is now prepared to accept entries for its third series of yield and quality trials of new varieties of Potatos from breeders who are willing to entrust the Institute with the marketing of their productions on a profit-sharing basis. The trials are planned to last for five years, at first in Scotland only, but in the later years also in the English Potato districts. Only those varieties which do sufficiently well in the trials will be placed on the market. Full particulars of the conditions of the trials are given in a form of agreement which may be obtained from the Secretary, National Institute of Agricultural Botany, Huntingdon Road, Cambridge, to whom those intending to enter new varieties for these trials should apply not later than February 29, 1924.

Gardeners' Royal Benevolent Institution; Worcester and District Auxiliary.—The Worcester and District Auxiliary of the Gardeners' Royal Benevolent Institution raised just over £100 for the Fund during 1923, the balance sheet showing receipts amounting to £101 0s. 3d. and expenses, printing, postages and Stationery, £9 5s. 2d. Of the balance, the sum of £90 was sent to Sir Harry J. Veitch, Treasurer of the Institution, leaving a sum in hand of £1 15s. 1d. A considerable portion of the money was raised as a result of opening Davenham and Ynys-y-Maengwyn gardens to visitors, the amount collected in this way being £33 17s. 9d. The membership of the auxiliary has increased by seven new annual subscribers, but the receipts are not quite so good as last year, probably because Madresfield gardens were not open to the public in 1923, owing to the unfortunate accident to the gardener, Mr. W. H. Lambert. The officers of the Society include the Rt. Hon. The Earl Beauchamp, K.G., President; The Rt. Hon. Lord Dudley, Rt. Hon. Viscount Elmley, Rt. Hon. Stanley Baldwin, P.C., M.P., Col. J. S. Hooker, R. C. Smith-Carington, Esq., Roger J. Corbett, Esq., Dyson Perrins, Esq., and W. Crump, Esq., Vice-presidents, and a very influential executive committee.

Brownea Crawfordii at Kew.—This handsome hybrid Brownea is now in flower in the Palm House at Kew. It was raised by the late Mr. W. H. Crawford, of Lakelands, Cork, from B. macrophylla and B. grandiceps. In appearance the flowers closely resemble those of B. macrophylla, and when fully opened are a glowing shade of salmon-pink. The opening of the flower cluster is interesting. The newly developed flower head is very like the bud of a large Paeony bloom, and the compact flowers gradually unfold in circular arrangement until the whole head is a huge mass of bloom containing between sixty and seventy flowers, and measuring about eight inches across. The individual flowers are tubular, and the long filaments of the stamens add further attractiveness to the bloom. The flower heads are borne both on old and young branches. Fortunately, the big plant is situated near the stairway leading to the gallery in the Palm House, from whence visitors may obtain a fine view of this magnificent exotic tree.

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* *Journal of Helminthology*, Vol. i.

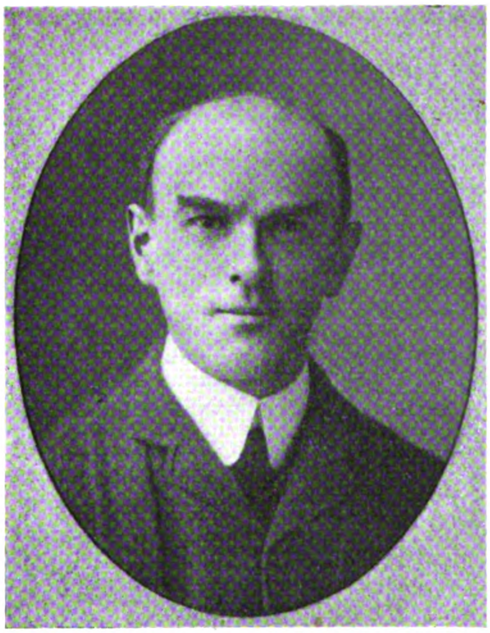
Royal Gardeners' Orphan Fund.—The annual general meeting of the subscribers of the Royal Gardeners' Orphan Fund will be held at "Simpson's," 100, Strand, W.C., on Thursday, February 7, 1924, at 4 p.m., for the purpose of receiving the Report of the Committee and Statement of Accounts for the year; to elect officers for the ensuing year; to elect five children to the benefits of the Fund; and to transact such other business as may arise.

A New Garden Club.—That the many garden lovers of this country should be without the advantages afforded by a really good club has given rise to comment from time to time and the Gardeners' Club, Ltd., is to be congratulated on an attempt to provide what, to many, is a long-felt want. The town house of Lord Leconfield, 9, Chesterfield Gardens, Mayfair, has been secured as the premises for the new club, to be known as The Garden Club. It is a magnificent house containing much beautiful architectural and decorative work, and at the present time it is undergoing structural changes to bring it within the needs of modern requirements. Tasteful decorative and furnishing schemes are promised and every care is to be bestowed upon the comfort of the members. The premises are to be centrally heated and will contain dining and grill rooms, lounges, smoke room, library and writing room, lecture room, two card rooms, a ball room, etc. There are to be over fifty bedrooms, and provision is being made for bachelors' quarters. Mrs. Marion Cran has charge of matters dealing with gardening and we understand that lectures on horticultural subjects will be made a special feature. The entrance fee at present is £2 2s., but this will be raised to £10 10s. so soon as the club opens. The annual subscription is £8 8s for town members and £6 6s. for country members, while for overseas members the subscription is £1 1s. per annum and £1 1s. per month when in London. Members are offered 6% Cumulative Participating Preference shares of £1 each and holders of twenty-five or more shares will be exempt from the entrance fee. Holders of 500 shares will be granted a life membership. Already over 1500 members have been enrolled, many leading amateur horticulturists are serving on the Committee, and His Grace The Duke of Northumberland has been elected President. The club will be opened on February 12, when an "At Home" will be given and members invited to bring guests. Mrs. Sutor is the Governing Director of the Club and Capt. Garforth the Secretary.

National Chrysanthemum Society. — The Annual General Meeting of the National Chrysanthemum Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on Monday, February 4th, at 6 p.m., when the Report and Statement of Accounts for the year 1923 will be presented, and officers elected for 1924.

A New Rose.—The American Rose Society is distributing a new Rose named Mary Wallace, raised by the late Dr. Van Fleet. According to *Horticulture,* U.S.A., the new variety is a hybrid Wichuraiana obtained by a cross with a pink hybrid Tea. The foliage is large and glossy and is not subject to disease, whilst the stems attain to a height of six to eight feet. The flowers measure four or more inches in diameter, are semi-double and of a bright, clear rose-pink colour with a touch of salmon at the base of the petals.

Mr. A. B. Jackson.—Mr. A. B. Jackson, whose portrait we have much pleasure in publishing in the present issue, has for many years interested himself in the study of hardy trees and shrubs, and like most systematists he began his botanical career by a critical study of British plants and their distribution. In fact it was whilst on a visit to Kew to examine the Herbarium specimens of British Mosses that he was offered a post as temporary assistant in the Herbarium, which position he filled for a short period. About that time Mr. H. J. Elwes and Prof. Henry were preparing their monumental work, *Trees of Great Britain and Ireland*, and for two years —1907 to 1909—Mr. Jackson acted as their assistant, thereby gaining a very thorough knowledge of trees and shrubs. Since then he has been entrusted with many important tasks dealing with this extensive plant section. In 1910 he prepared for the Duke of Northumberland a catalogue of hardy trees and shrubs growing in the grounds of Syon House, Brentford, and three years later compiled a similar catalogue of the trees and shrubs growing in the Duke's country estate at Albury. Both these catalogues have been published and privatel circulated. Of far greater magnitude however, is the work that Mr. Jackson is undertaking at the Woburn Estate of the Duke of Bedford. Here the work has been in progress since 1914, and in addition to the preparation of the catalogue he is also directing the planting of the new Pinetum and making many additions to this already extensive collection. Mr. Jackson has also been engaged upon the famous Westonbirt collection since 1920, the catalogue of which is shortly to be published, while another important collection at present receiving his attention is that of Patshull House, the Earl of Dartmouth's estate near Wolverhampton. We may add that these catalogues are not mere lists of names; their compilation entails a vast amount of hard work and study, for not only have the names of specimens to be accurately determined, but notes of interest are appended so that the catalogue serves as a useful permanent record of the collection at a particular date. That Mr. Jackson's knowledge of trees and shrubs is held in great esteem is recognised by the fact that he was made an Associate of the Linnean Society in 1917, a very high honour of which he is justly proud. More recently Mr. Jackson, in conjunction with Mr. W. Dallimore, has published an admirable treatise on Conifers, and in connection with this work it is a pleasure to record that both authors are to receive the Veitch Memorial Medal on the occasion of the Royal Horticultural Society's annual meeting on February 12.



MR. A. B. JACKSON, A.L.S.

Imperial Fruit Show, 1924. — Although the Imperial Fruit Show held at Manchester last autumn was a great success, the audited accounts disclose a loss of £270 owing to the fact that Entertainment Tax had to be paid in full and amounted to £450. The loss, with the exception of £50 has been met by subscriptions, and it is hoped that the balance will be disposed of in a similar manner. At a recent Committee meeting it was resolved to organise a show for 1924 to be held at the Bingley Hall, Birmingham, from October 24 to November 1 inclusive, and it is proposed to finance the exhibition by the system of guarantees adopted last year.

Local Horticultural Societies.—The Bournemouth Horticultural Society, which held its annual meeting on the 12th inst., had a very successful year in 1923. Both the summer and autumn exhibitions were well attended and the gross receipts from the two functions amounted to £228 1s. 0d. The statement of accounts show a balance in hand of £52 12s. 10d., receipts from all sources amounting to £424 0s. 7d. The Mayor of Bournemouth, Councillor T. Bodley Scott, is the President of the Society, which has many influential people on its list of vice-presidents.—Brighton, Hove and Sussex Horticultural Society's Chrysanthemum show held last autumn was one of the best in the history of the Society. On the two days of the exhibition no fewer than 4,996 persons paid for admission, in addition to those members and friends who had passes and tickets. During the year the members visited Newtimber Place and Tilgate, Crawley; Cuckfield Park; Cowdray, Midhurst; and Lavington Park. The most gratifying feature of the year was the election of one hundred and twenty-five new members. As a result of the Society's sound financial position, the Committee has decided to resuscitate the summer show to take the form of a Rose, Sweet Pea and Carnation exhibition in the Dome and Corn Exchange on July 9 and 10 this year. The Chrysanthemum show will be extended to three days, November 11, 12 and 13. The income of the Society in 1923 amounted to £1,018 0s. 11d., and there is a balance of £432 11s. 11d. on the deposit and current accounts. The annual meeting was held on the 24th inst. in the York Place School Hall, Brighton. — The annual meeting of the Southwick Horticultural Society was held in the local Town Hall on the 10th inst. The annual report of the Committee stated that the membership is one hundred and eighty-nine, being an increase of twenty-one as compared with the previous year. During the winter session successful lectures were held and during the summer visits were paid to places of interest, including Arundel Castle. The annual show held on August 29 resulted in a loss of £7 18s. 8d. owing to bad weather. It is interesting to note that, in making application for exemption from the entertainment tax, the officials claimed that the wild flower collections of local school children and exhibits of childrens' knitting were "entertainments" within the meaning of the Act and notice has been served upon the Committee that if these two items form part of next year's flower show, they will be liable to entertainment tax! The total income of the Society during 1923 was £141 18s. and there is a balance in hand of just over £4. Mr. F. F. Flinn, J.P., was re-elected President and Mr. J. T. Smith, Hon. Secretary.—The new Bath Horticultural Society formed last year in connection with the holding of the National Sweet Pea Society's exhibition, raised over £600 and made a profit of more than £100. At the annual meeting of the Bath Gardeners' Society suggestions were made for amalgamating the two local societies and it was decided to arrange preliminary meetings between the committees.

Bulletin of the Chamber of Horticulture.—The January issue of the quarterly *Bulletin of the Chamber of Horticulture* contains a very interesting feature in that nearly four pages are devoted to "Technical Advice" compiled from reports made in response to applications for assistance received by the Technical Committee of the Chamber and drawn up by the Honorary Secretary, Mr. Theodore Parker. Growers' queries are grouped under various crop headings and the answers are given in a concise form and contain much information. It is interesting to note that this special Committee is in direct touch with many growers and is always anxious to investigate any trouble if further search is thought to be necessary. The editorial Notes treat with matters of passing interest, and the number also contains an appreciation and portrait of Mr. John Harrison, Junr., the President of the Chamber. Mr. A. S. Galt, of the Leeds University Horticultural Staff, in an article entitled "Are our Cultivated Plants Healthy?" expresses the opinion that modern cultivation, selection, inbreeding, etc., tend to upset the equilibrium of crop plants and thereby have rendered them incapable of defence against diseases and pests. True, most plants under cultivation have thrown aside many of nature's aids, as found in their wild prototypes, yet our wild grasses, flowers and trees do not show any marked immunity to disease or insect attacks. Mr. H. Morgan Veitch deals with "The Draft Rating and Valuation Bill," while the reports of the Council and the various committees are also incorporated in this interesting publication.

Appointments for the ensuing Week.—Tuesday, January 29—Royal Horticultural Society's Committees meet. Wednesday, January 30—West of England Chrysanthemum Society's annual meeting. Thursday, January 31 — British Florists' Federation annual meeting and dinner at the Connaught Rooms. Friday, February 1—Orchid Club's meeting. Saturday, February 2 — Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Ringing Fruit Trees.*—Let me draw attention to the ancient but neglected practice of ringing. If a ring of bark as wide as the edge of a penny piece be removed in the spring from the stem of a fruit tree, the latter will be suddenly checked in its disposition to make wood above the ring; there it will form blossom spurs instead; while below, the latent buds will be incited to action and an abundance of wood be produced. In the course of summer, if the upper branches be well furnished with leaves, the descending cambium will form a lip at the upper wound, which joining the lower will form a channel for the interrupted circulation. I have repeatedly tried this with success, and hope it may be of great service in the cultivation of pyramidal trees. Mr. Rivers, however, in his "Miniature Fruit Garden," lays no stress upon it, though he speaks incidentally of notching the bark and young wood to the extent of half an inch in length, to procure wood. His remedy for a pyramidal tree not well furnished below with branches is the severe one of pinching closely in May and June all the young shoots on the upper tiers, including the leader, till the lower ones have made young shoots of a sufficient length to give uniformity to the tree. This, he well observes, requires much attention and trouble. Those who are disposed to try the ringing method should operate in the spring, when the sap is flowing freely, not cutting too deep to wound the wood and not too wide for the bark to unite in one season, unless the luxuriance of the tree be great, when an open ring for two years will have an excellent effect. In doubtful cases the ring may be very narrow, at least at one point, where it may soon unite. If there should be blossom buds on the upper tiers, the ringing, if deferred till the blossoms are expanded, will promote the setting and improve the size and quality of the fruit. *A Subscriber, Goudhurst, Kent. Gard. Chron,, January* 27, 1849.

FLORISTS' FLOWERS.

NEW PERPETUAL-FLOWERING CARNATIONS AT WEST HALL, BYFLEET.

In the gardens of West Hall, Byfleet, I recently saw a fine batch of about two dozen Carnations of the Perpetual-flowering variety, Master Michael Stoop. The plants were growing in 6-inch pots, and they were better than I have previously seen this new sort, either before or after flowering. This new Carnation received the R.H.S. Award of Merit some two years since. The blooms that were most developed measured nearly four inches across, were perfectly double, and had the petals well placed; the latter were smooth and thick, so that the form of the bloom left little to be desired.

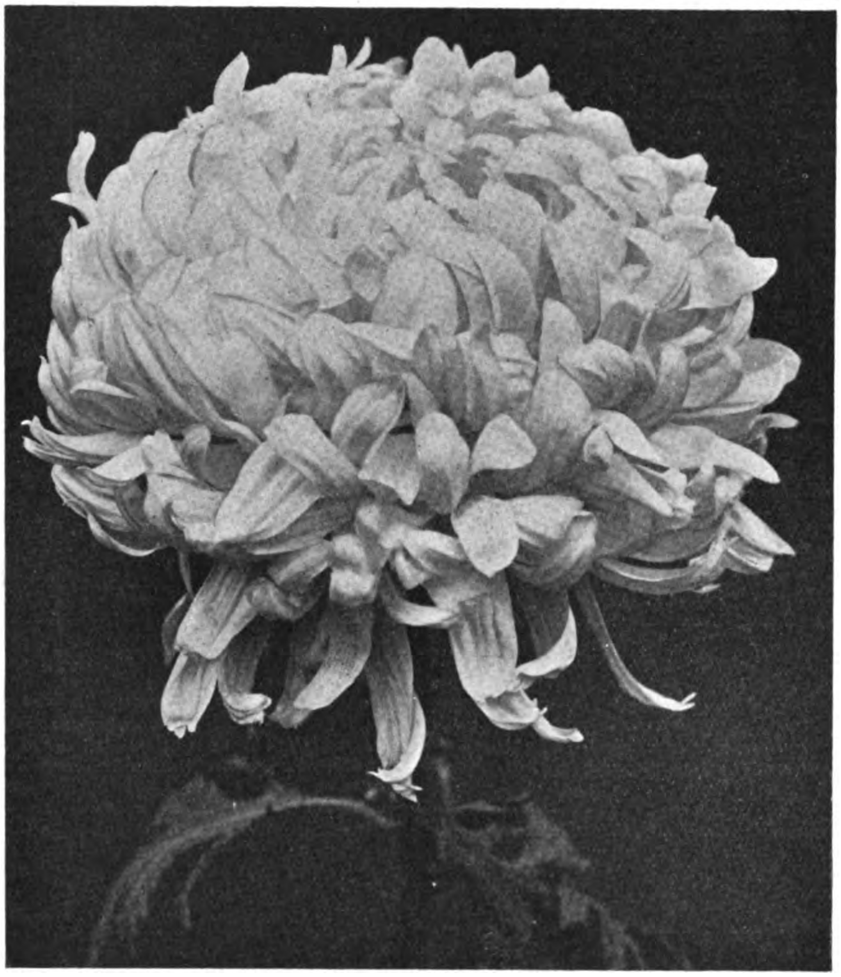


FIG. 17.—CHRYSANTHEMUM H. W. RIEMAN: R.H.S. AWARD OF MERIT, JANUARY 15 (SEE P. 41).

The colour of this fine novelty is a bright salmon-cerise, and it provides a sparkling, lively tone which makes the flower most attractive, either in natural or artificial light. The calyx, stem and growth of plant are alike excellent. The plants at the time of my visit were each bearing from six to eight blooms in various stages of development and promised to provide a fine display.

Another beautiful seedling named Mrs. F. M. Stoop, is mentioned simply to note something out of the common, for there is only a plant or two of this sort in existence, and it will therefore be some time before interested cultivators will have the opportunity of growing it. The colours of the bloom are soft cerise and purple, and the flower is pleasing in its delicacy and refinement.

A third variety named West Hall Scarlet was represented by a batch of sturdy specimens. This variety has not yet been exhibited, although the raiser, Mr. G. Carpenter, has grown it for several seasons. In the same greenhouses, and grown under precisely the same conditions as Aviator, Edward Allwood, and other well-known scarlets, it excels them all for vividness, for thickness of petal, and size of bloom. The habit of the plant is good.

A magnificent dark-coloured variety named Master Fred Ward more approaches in size of bloom and in smoothness of petal the finer sorts of the florists' border section than any maroon-coloured Carnation of this type I have yet seen.

In the glasshouses at West Hall there are many other seedlings on trial, including some of a new shade of mauve.

It has been stated that only one good variety of Perpetual-flowering Carnation can be expected from ten thousand seedlings; and an outstanding sort only from three times that number.

Although Mr. Carpenter raised a considerable number of seedling Carnations during recent years, the varieties described above resulted from much more limited numbers. Anyone, therefore, desirous of attempting so fascinating a hobby as the raising of Perpetual-flowering Carnations from seed need not be deterred from doing so on account of expecting only remote success. But it must be remembered that raising new varieties of any flower calls for much patience and that success is more likely when parents are selected with a view to securing a definite result. *H. Shoesmith.*

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

Calanthe.—From the middle of November to the end of the present month, varieties of Calanthes of the Veitchii and vestita sections will continue in bloom, together with the chaste white variety C. Harrisii. As the flower spikes are removed the plants will need a decided rest. It is necessary to thoroughly harden and mature the pseudo-bulbs in order that when the growing season re-commences the new growths will start with renewed vigour. Water should be withheld from the roots; the plants may be placed on a dry shelf, close to the roof glass in a house where the temperature does not fall below 55°. Before placing them in their resting quarters it is advisable to thoroughly cleanse each pseudo-bulb of scale insects. The later flowering varieties of the C. Regnieri section should still be afforded water occasionally until their flowering season is over.

Coelogyne cristata. This Orchid and its varieties will soon be producing their flower scapes, and the plants may be afforded a more liberal supply of water at the roots, but the amount should be increased gradually. Care must be taken to prevent moisture collecting in the new growths, or the flower scapes may decay. Where several plants are grown, the flowering period may be lengthened by placing a specimen or two in a house with a warmer temperature, which will cause them to produce flowers earlier.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Figs.—The Fig is easily propagated from cuttings made of young, ripened tips of the shoots, from four to five inches in length. They should be inserted around the edge of a small receptacle, and the latter stood in a warm house, such as a Melon house or pit. The cuttings should make fine trees by the early autumn and will produce a few fruits the same season. The old Brown Turkey variety is one of the best sorts, whilst whilst Negro Largo, White Ischia and Bourjassotte Grise are all suitable for pot culture.

The Cold Orchard House.—Every opportunity should be taken to put this house in order. If the pruning of the trees has not been completed the work should be finished forthwith. The trees should then be washed thoroughly with an insecticide. Even if the house is to be repainted the glass should be washed inside before this work is proceeded with. Trees that are planted out in borders should never be allowed to become dry at any season of the year. Many failures may be traced to this error alone. Apply a top dressing of soil, over which place a slight top dressing of short manure, which will greatly assist the water to penetrate more evenly into the soil. Keep the house as cool as possible by opening the ventilators.

Early Vines and Peaches. — Vines and Peach trees that were started for obtaining early crops are breaking into growth, and, with the variable weather of this winter, extra care is needed in regulating the temperature and ventilating the fruit house. Great care should be exercised in admitting cold air, for although I greatly favour a little fresh air entering the house for a short period in the day-time whenever the outside conditions will allow, cold draughts must be rigorously guarded against. The evil effects caused by cold draughts may not be noticeable at the time, but they will be sure to appear later. Excessive temperatures at night should be guarded against in the early stages of all fruit forcing; it will be safer to err on the side of a slightly lower temperature when the weather is frosty, than to heat the water pipes to excess, and nothing is gained by attempting to force growth unduly at this season. When long days and more genial weather arrives the vines and trees will benefit by their slower development in the absence of excessive warmth now. The damping of walls and overhead syringing should be regulated by outside conditions, but always guard against a close, stagnant atmosphere. A suitable night temperature for vines at this stage of growth is 55° to 60°, and that for Peaches 50° to 55°.

Training and Watering.—Complete the work of tying the shoots of all Peaches, Nectarines and Figs under glass as soon as possible; and, should the border be dry, water it thoroughly.

THE FLOWER GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Climbing Plants.—Where attention has been given in the matter of pinching the shoots during the season of growth and pruning has been carried out after flowering, little winter pruning of climbers will be found necessary. Should any subjects still need pruning, however, the work should be no longer delayed. At the same time a careful examination of old ties should be made before new growth commences. It is surprising how quickly a branch can become strangled through the cutting of an old tie, and it not infrequently happens that the shape of a valuable specimen may be spoiled through failure to give this necessary attention in time. Many perfectly hardy, early-flowering climbers trained on walls and buildings open their flowers abnormally early because of these warm and sheltered conditions. Some of them, particularly those having east or south-east aspects, are liable to injury from frosts owing to the sun's rays reaching them while still frozen. To obviate this it is a wise plan to have light frames made of the required size to which tiffany or canvas is tacked. If these are placed in front of the plant until the frost has left it little damage will be done. This is also a very efficacious way of protecting the more tender climbers and it is frequently less damaging than covering them in a more permanent manner.

The Rock Garden.—This attractive section of the garden has always something of interest, but it is essentially a garden of spring beauty, and many plants are already approaching their flowering period. Most of the occupants benefit from an occasional top-dressing of good compost, and it is good policy to give this before growth becomes too active. Free the whole surface from weeds and apply various composts made to suit the requirements of the different classes of plants they are intended to help. Any of the stronger growing plants which have a tendency to become leggy or to encroach on their weaker neighbours should be cut well back. During the work a note should be made of any losses which may have occurred during the winter with a view to replacements during next month. Tender subjects may need some protection during periods of sharp frosts, and this may be effected by using squares of glass or branches of evergreen, but these should be removed immediately when favourable conditions ensue.

Paths. A survey of the garden paths of every description should be made and any necessary alterations carried out immediately, before work of a more pressing nature becomes urgent. Even well-made paths are liable to lose their even surface through wear, subsidences or percolation of water underneath, and need periodical examination. Sunken stones in stone paths should be restored to their proper level, and hollow places in gravel paths made good, so that they will retain a good surface enabling them to throw off water quickly and thus give comfortable service immediately after heavy showers.

HARDY FRUIT GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Spraying.—As fast as pruning is completed, advantage should be taken of mild, still weather to attend to trees that are in need of cleansing. Fruit trees cannot be expected to produce first-class crops unless they are kept clean, and in low-lying, damp positions the necessity for this is more pronounced than when they are growing on high, exposed situations. There are many caustic alkali washes on the market quite safe to use provided the trees are dormant. A day with no wind should be chosen, if possible, and the operator should exercise care in not allowing the spray to reach any part of his person or clothes, as the specific is liable to burn anything it comes in contact with. Use a sprayer with a fine nozzle, and spray every part of the tree. Where only a few small trees require to be treated a syringe with a bent spray nozzle attached may be used. Any plants growing near the trees should be covered before the spraying is done.

Pruning Bush Fruits.—It is not advisable to prune bush fruits too soon, as the birds are liable to take the buds if a cold spell of weather should prevail later. However, where the work must be done, a start may be made to prune Red, White and Black Currants In the case of the last, some of the old wood should be thinned out and as much young wood encouraged to grow from the base as possible. Red and White Currants should have the weak wood taken out and the strong shoots of the previous year's wood pruned to four or five eyes, taking care that the top bud points outward. If the bushes are becoming too thick, cut some of the branches clean out to their base. Rake all prunings up when the pruning is finished, lightly fork the surface soil and apply a light mulch of well-rotted farmyard manure. If required some of the best shoots should be saved for use as cuttings. These cuttings should be divested of all buds except three at the top, and planted in rows on a north border, inserting each cutting with a dibber after dropping a little sand into each hole. The cuttings should be made from twelve inches to fifteen inches long, and the lowest bud that is left should be well above the ground level. Plant them far enough apart to permit of using the hoe between the rows during the summer. If by the action of frost the cuttings are displaced, make them firm again, and put some rough leaf-mould between the rows.

THE KITCHEN GARDEN.

By WALTER Y. STAWARD, Gardener to Mrs. JOHN FEENEY The Moat, Berkswell, Warwickshire.

Broad Beans.—If vacant space can be found on a south border, a sowing of Broad Beans should be made. The rows should be made 18 inches apart, and the beans planted 6 to 8 inches asunder. Some prefer to plant in double lines, but no advantage is gained by this method, as Beans planted too closely never crop so freely as when plenty of room is allowed.

Early Peas.—Sowings of early Peas may be made on a south border. Several dwarf varieties are suitable for early cropping, including Peter Pan, American Wonder and Lincoln. This last variety does well on heavy soil and its constitution is robust.

French Beans.—Pots 9 inches in diameter should be prepared for the growing of French Beans. They should be washed, crocked with clean pot-sherds, and half filled with turfy loam that has been passed through a 1½-inch sieve. Place 5 to 6 seeds in each pot and germinate them in a house with an even temperature not excessively high.

Shallots. The bulbs should be sorted and those selected for planting placed in the ground at the first opportunity. Draw a drill 3 inches deep and push the bulbs into the ground up to their necks, allowing a few inches between each bulb. The rows should be 10 inches to 12 inches apart.

Globe Artichokes.—Any blanks in the beds of Globe Artichokes should be filled by dividing some of the larger plants in halves and planting the portions. If rough leaves are available a good mulching of these, placed close to the crowns, will be beneficial to the young plants in spring; coal-ashes are also useful for protecting the crowns.

Broccoli.—When the heads of Broccoli have been cut the old stalks should be cleared from the ground. They need not be taken away if the ground is to be trenched, for such rough material may be placed in the bottom of the trenches.

General Remarks.—Where Celery has been grown the sites of trenches should be marked with a stake before the ground is dug over. This will be a guide for the sowing of Peas or planting Scarlet Runners later. The roots of these plants will derive great benefit from the manure that was used for the Celery. A careful study should be made of vacant ground as to the kinds of crops most suitable for the particular portion of land.

PLANTS UNDER GLASS.

By F. J. CLARK, Gardener to Lt.-Col. SIR GEORGE HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Seed Sowing.—Seeds of Begonia, Gloxinia, Gesnera, Saintpaulia and Streptocarpus may now be sown in shallow, well-drained pans. A light, finely-sifted compost consisting of loam, peat, leaf-mould and sand may be used. The pans should be prepared on the the day previous to sowing the seed and the soil should receive a thorough watering by means of a fine rosed can. This watering should suffice until the seed has germinated. On the following day the soil will be in a fit condition to receive the seed. The slightest dusting of the finest soil will be sufficient as a covering for seeds of the above named plants. The seed pans should be placed in a propagating frame, in the stove, or Cucumber house, where a bottom heat of 70° to 75 is available. Cover each pan with a square of glass and darken the frame with brown paper. After a few days examine the pans twice daily and remove the paper as germination takes place. To provide foliage for table decoration, etc., a sowing of Asparagus Sprengeri and A. plumosus should also be made. Hard seeds, like those of Asparagus are rather slow in germinating and since it may be necessary to apply water occasionally before this has taken place, a sandy, open soil should be used for filling the seed pans.

Hippeastrum (Amaryllis).—To supply further material for room decoration some of the earliest matured bulbs from the collection of Hippeastrums may be placed in gentle warmth. Choose bulbs which were amongst the first to flower last season and from those which have not been recently potted. Examine the pots to see that the drainage is satisfactory, give the bulbs a good watering and, after an interval of a day or so, when the surface soil has dried, firm the soil in the pots thoroughly, applying, if necessary, a top-dressing of loam and leaf-mould mixed with sharp sand. Water the plants thoroughly again until the whole ball has become moistened, and plunge the pots in a bed of leaves or fibre, which will provide a slight bottom heat, in a house having a temperature of about 55° to start with.

Watering.—No operation connected with plant culture calls for greater care and discrimination than watering, and whilst this is true at all times of the year, care in watering is especially necessary at this season. During the winter watering should be done in the mornings and the water should be warmed to the temperature of the house. Hard-wooded plants and all plants growing in a low temperature should be kept well on the dry side for the present.

ORCHID NOTES AND GLEANINGS.

WINTER-FLOWERING CYPRIPEDIUMS.

THE winter-flowering Cypripediums are in their full beauty, and will continue to furnish a display during the early months of the year. There is now so much variety in this very useful family of plants. that even the most fastidious can be satisfied. Few plants can compare with them for the length of time the flowers remain fresh upon the plants, or when cut, whilst the majority of them may also be safely used for decorative plants indoors. As fog resisters Cypripediums have no equal, and this fact should commend them to amateurs and others living near large towns, whilst their cultivation is very easy; they are to be commended to those who make no pretension to growing Orchids, as many of them succeed under warm greenhouse conditions. Each plant should be kept moist at the roots, as, having no pseudo-bulbs, they soon suffer from drought. *B.*

INDOOR PLANTS.

CAMPANULA VIDALII.

THIS distinct and very quaint Bellflower is a native of the Azores but, unfortunately, it is not quite hardy in this country. It resents dampness, and when grown in pots, water should be given sparingly during dull, winter weather.

The large, creamy-white bells are produced during late summer, and the woody stems surmounting the bright-green leaves of hard texture, provide an unusual and beautiful contrast. This Campanula never flowers freely unless its roots are restricted; a pot-bound condition appears to be essential to the free production of flowers. The racemes of flowers are about nine inches long, and a well-flowered plant is by no means an insignificant adjunct to the alpine house or cool conservatory. Seeds germinate very easily and offer the best method of propagation. *R. E. A.*

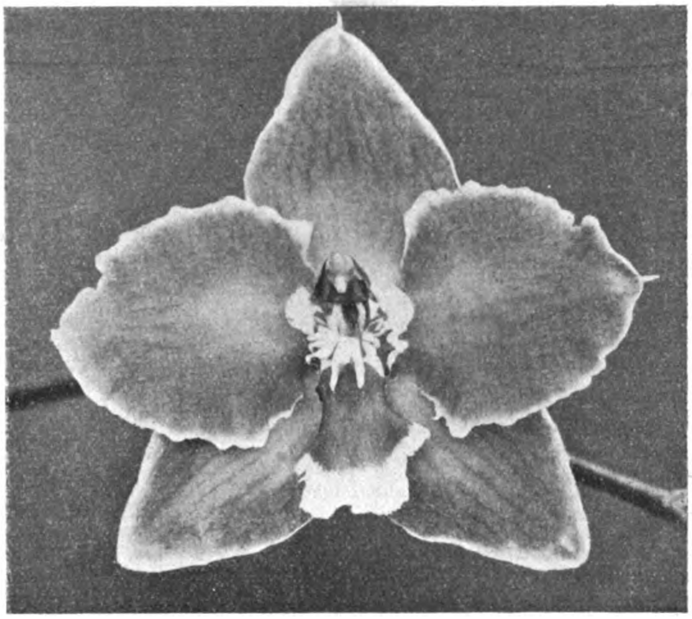


FIG. 18.—ODONTIODA COLUMBIA: R.H.S. FIRST-CLASS CERTIFICATE, JANUARY 15 (SEE P. 41).

NEW HYBRID ORCHIDS.

(*Continued from December 29, 1923, page 380.*)

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Christmas	B.-C. Thorntonii × C. Schroderae	Sanders.
Brasso-Cattleya Iroqnoi	B.-C. Mrs. J. Leemann × C. Kienastiana	J. P. Mossman.
Brasso-Cattleya Jessie Moore	B.-C. Digbyano-Mossiae × C. Cappei	Clement Moore.
Brasso-Cattleya Mirabeau	B.-C. La Marne × C. Hardyana	Mons. Maron.
Brasso-Cattleya Olympia	B.-C. Marguerite Fournier × C. Maggie Raphael	Mons. Julien Potin.
Brasso-Cattleya Sioux	B.-C. Mrs. J. Leemann × C. Zephyr	J. P. Mossman.
Brasso-Cattleya Yvonne	B.-C. Cliftonii × C. Fabia	Clement Moore.
Cattleya Clinton	Dowiana × Alfred Dimmock	J. P. Mossman.
Cattleya Marjorie	Ballantineana × labiata	Clement Moore.
Cattleya Shenandoah	Luddemanniana × Zephyr	J. P. Mossman.
Cattleya Timmendaqua	Fabia × Ballantineana	J. P. Mossman.
Cypripedium Bendigo	Niobe × Bronzino	Sir George Holford.
Cypripedium Benedict	Bendis × Mrs. W. Mostyn	Mrs. Bruce & Miss Wrigley.
Cypripedium Charlotte Dillon	Lady Dillon × Pyramus	G. F. Moore.
Cypripedium Earl Marshall	Earl Tankerville × King George V.	Mrs. Bruce & Miss Wrigley.
Cyyripedium Lady Babble	Actaeus Archie Niell × Hera	Mrs. Bruce & Miss Wrigley.
Cypripedium Luptonii	Earl Tankerville × Antinous	Sir J. Rutherford.
Cypripedium Mother Eve	Mrs. F. Sander × Eve	Mrs. Bruce & Miss Wrigley.
Cypripedium Obelisk	Keighleyense × Memoria Jerninghamiae	Mrs. Bruce & Miss Wrigley.
Cypripedium Peter Pan	Alcibiades illustris × Peter	S. Gratrix, Esq.
Cypripedium Queen Maud	Queen Alexandra × Charlesworthii	S. Gratrix, Esq.
Cypripedium Robin	Marina × Thompsonii	S. Gratrix, Esq.
Cypripedium Seamew	Mrs. Carey Batten × Troilus Craveniamum	Mrs. Bruce & Miss Wrigley.
Cypripedium Sgt. Murphy	Beryl × hirsutissimum	Mrs. Bruce & Miss Wrigley.
Cypripedium The God Pan	Lord Wolmer var. Hermes × Satyr	Mrs. Bruce & Miss Wrigley.
Cypripedium Uriah Heap	Hera × Moonbeam	Mrs. Bruce & Miss Wrigley.
Laelio-Cattleya Apache	L.-C. Clonia × C. Hardyana	J. P. Mossman, Esq.
Laelio-Cattleya Potasset	L.-C. Clonia × C. labiata	Clement Moore, Esq.
Laelio-Cattleya Royal Sovereign	St. Alban × luminosa	Sanders.
Laelio-Cattleya Titian	St. Gothard × Bella	Sanders.
Odontonia Columbia	?	Charlesworth.
Odontoglossum Maharajah	Mirum × Queen Alexandra	C. J. Lucas, Esb.
Odontoglossum Minnewater	Her Majesty × ardentissimum	Sanders.
Odontoglossum Rosheriae	Groganiae × V. C.	Sir J. Colman.

THE WINTER TREATMENT OF LAWNS.

The defects of the grass in lawns, borders, and other areas of turf, are easily seen in January; the moss is now free to over-run the grasses and fill up the vacancies formerly occupied with other plants now dead. Undesirable plants, or weeds, such as the Buttercup, Daisy, Celandine, etc., are also much in evidence. The true and desirable grasses become exhausted quickly, and yet this statement should not be made without qualification, for no plant is so remorseleessly cut to the ground week after week and yet continues to live. It is probably true, however, that if a register could be kept of the death rate of our grasses, as grown in the lawn, the percentage would be higher than where the same species is grazed by animals or cut for hay. Not only so, but there are some species which are known as "bottom" grasses whose presence is most desirable in our lawns although it is necessary for several reasons to have stronger growing kinds as well.

By "exhaustion" I mean the gradual elimination of the weaker grasses brought about by continued mowing aided by the eternal law of the strong overcoming the weak. Not only is the grass plant mutilated and thereby loses strength, but the soil of the lawn becomes exhausted in the process of sustaining, as it were, an insatiable demand on the part of the grass box. There is a limit to the supply of lime, for instance, in our soil in this district, and if there is not a supply to meet the demand of the plant, the chief function of the soil breaks down. In other soils there may be an abundance of lime, an inexhaustible supply, but a dearth of potash or other essential ingredient. A soil, to be capable of sustaining the mineral food of the plant, must yield a supply of the whole of the essential elements. The absence of either means the inefficiency of all.

Grass land rarely becomes sour because of the grasses themselves. Evidently nature has built up a type fitted to live for a long period upon the ashes of its fathers. The Clovers fail to do this as do many other plants in the garden. Lack of porosity in the texture of the soil or subsoil or both; or lack of some essential food ingredient; or the presence of some factor of an acid character must account for sourness in the soil. The grasses which we desire for a lawn or for a turf area of some extent will not grow well upon sour land nor will they grow upon land that is deficient in plant food. The problem of keeping a grass plot in perfect condition is a matter of (first) food supply, and (second) a supply of air in the soil. Both the conditions must be fulfilled. If the land requires draining this must be done, for no amount of manure applied can make up for any deficiency in the drainage. The opposite extreme is scarcely less desirable, for the mark of a drain underneath it spoils the very object for which the grass was laid down, viz., to supply a green sward without spot or blemish. A perfectly grassed area is a thing of beauty and a joy for ever, and anything one can do to maintain its true character is worth while.

After a lawn is well and truly laid, cultivating the grass resolves itself into a matter of manuring. The best manure for a lawn is farmyard dung from mixed stock. It will not be a perfect manure and the preparation of it before it is spread upon the grass should be carefully attended to. There will be myriads of weed seeds in it; it should be in a perfectly rotted state; and it should be sifted. Then it should be spread evenly all over the lawn surface and brushed in with a Thorn brush. A dressing given in February should be at the rate of eight cartloads or eighty barrow loads per acre. A heavy dressing is not advisable. We aim at maintaining a good "bottom," and can only do so by avoiding immoderate mulchings of nitrogenous manures. Sometimes the use of decayed garden refuse is advised for lawns; true, this gives a strong top growth to the grass, but what with the resultant weeds and the over luxuriant growth it is a very poor practice.

We use artificial manures alternately with and to supplement the dung. Every two years the grass receives a dressing of basic slag at the rate of 4½ lbs. per perch, applied in autumn. Dissolved bone or superphosphate of lime is used occasionally for scarcely any other purpose than for driving out the moss. Its action appears to be to make the already sour soil so acid that even the moss succumbs. Potash may be supplied as kainit, sulphate of potash, or as ash from a wood fire. In any case it is most necessary. Kainit should be used at the rate of six cwts. per acre; the sulphate at the rate of one cwt. per acre and the ash at the rate of two tons per acre.

A brush made of Thorns drawn through a hurdle and laden with a weight of half cwt. will greatly benefit the grass if worked over it immediately before and after the dressing of manure. *H. Williams, Tolvean, Redruth.*

BULB GARDEN.

TULIPA SAXATILIS.

Of rare occurence in gardens, Tulipa saxatilis is a very pretty species, but unfortunately it is not so generous with its flowers as are the majority of Tulips. It was introduced from Crete in 1827, and flowers in late April and early May. The leaves are of the brightest green and possess an extraordinarily smooth surface which alone distinguishes T. saxatilis from any other species.

The flowers, produced on stems from six inches to one foot in height, are of moderate size, somewhat conical in form, and the colour may be described as lilac or lilac-pink with a well-defined clear yellow base. A somewhat queer feature of this Tulip is that a bulb producing a pair of leaves will not always flower, whereas in almost all other Tulips—species or florists' varieties—two leaves may invariably be taken as a sure indication of ensuing bloom. If planted in the drier and well-drained parts of the rock-garden the bulbs may remain undisturbed for a few years, but if planted elsewhere annual lifting should be practised.

The harvesting of this species requires care for it produces underground runners of considerable extent at the extremities of which new bulbs are formed, sometimes at a considerable distance from the mother bulb. The season of flowering is late April and May. *R. E. A.*

GALANTHUS CILICICUS.

Judging from the rarity with which this species is met with it is regarded as a very uncommon plant. This is unfortunate as it is certainly one of the most attractive and distinct of the Snowdrops and was first described by Baker in 1897, from specimens provided by Mr. T. S. Ware.

In appearance the flowers resemble those of the common Galanthus nivalis, and are produced singly on stems from three to four inches in height, but it is usually in full flower before G. nivalis or G. Elwesii appear above ground, and this year perfectly developed blooms were picked on January 10 at Kew. The leaves are two in number in most cases; where a bulb throws three leaves no flower stem is produced. Why should this be? A similar thing happens in Daffodils, and this year it is to be noticed particularly with the variety Golden Spur. Three leaves appear to be the normal number, whereas bulbs, although not lacking in size, may produce four or more leaves and yet not flower.

G. cilicicus will thrive in well-drained soil, and is a good subject for the rock garden: it may be left undisturbed for years. The bulbs are very small, and should not be planted too deeply In its wild state it is found in the Cilician Taurus, where it flowers from November to March at an elevation of some 1,500 feet above the sea-level. *R. K.*

AMERICAN NOTES.

The American Orchid Society will hold its first exhibition in Boston, Mass., on May 8 to 11 next, in the halls of the Massachusetts Horticultural Society. Everything points to a superb exhibition. Under special permits issued by the Federal Horticultural Board a number of prominent growers have made quite large importations of new, rare and unusual varieties likely to flower in time for the exhibition. Having been privileged to see a number of these shipments, I have been impressed by their size and the splendid condition in which they have arrived. Included are many plants entirely new to this country, especially in the way of trigeneric hybrids.

The American Orchid Society has a membership of one hundred and twenty-five and is steadily growing in prestige. It is offering numerous gold and silver medals of special design, and the Massachusetts Horticultural Society, Society of American Florists, National Association of Gardeners, and many individuals are contributing medals, silver cups and other premiums. The display of Orchids will be by far the most extensive and varied we have yet seen in America.

Of peculiar interest to your side is the fact that Mr. Gurney Wilson has been invited to attend and officiate as chairman of the expert judges, and the fact that he has accepted the invitation gives unbounded satisfaction here. Mr. Wilson will receive a very warm welcome in America, and time will permit him to see some of our more notable Orchid collections, both private and commercial, and still get back in time for the Chelsea Show.

While Cattleyas are easily the predominant Orchids cultivated in America, and succeed specially well under our sunny skies, Cypripediums are grown in considerable numbers, and Cymbidiums are rapidly growing in favour. Owing to our more torrid summers, Odontoglossums have always been the most difficult subjects to handle, but with the building of special houses for them, they are now being grown much more successfully, and in Massachusetts very fine houses of these plants are to be found at the private establishments of Mr. Albert C. Burrage, Beverly Farms; Mr. A. N. Cooley, Pittsfield; and at the commercial range of Mr. Thomas Roland, in Nahant. As grown by these gentlemen, Odontoglossums and Odontiodas will, I think, compare quite favorably with those grown on your side of the ocean.

It is pleasing to note that there is some revival of interest in East Indian Orchids here, and I have seen some excellent batches recently of Phalaenopsis, Vandas, Aerides, Saccolabiums and Angraecums. Mr. Burrage, who is President of the American Orchid Society, has also a very extensive collection of botanical Orchids. At his Orchid houses, which are some twenty in number, is to be found a remarkably varied collection of Orchids which are in splendid condition. He has just completed a special house for Vanda caerulea; he has some superb plants of this species. The Phalaenopsis house contains about 1,000 plants, and P. Schilleriana, P. amabilis, P. Rimestadtiana, P. Sanderiana and others are in grand health, and the whole house is bristling with spikes. Cymbidiums fill one large house, and included are dozens of the finest hybrids. Cattleyas fill several houses, and thousands of them are grown. Laelias, Cypripediums, Dendrobiums, Masdevallias and Odontoglossums are all very much at home, as are the numerous other varieties grown. Mr. Frederick Pocock, formerly with Sir Jeremiah Colman, has charge of this collection of over 25,000 plants.

We miss very much the forest species of Orchids, at one time imported so liberally; their exclusion has caused a number of commercial firms to commence the raising of

Cattleya hybrids on an extensive scale, and two firms are now said to have about 100,000 seedlings each, in various stages of growth. A number of others are also raising seedlings, but little is done here except with Cattleyas. Such Orchids as Dendrobium Wardianum, D. Phalaenopsis Schröderianum, and D. formosum giganteum, Vanda caerulea, Oncidium varicosum Rogersii and Odontoglossum grande are becoming increasingly scarce, but growers who have the standard Cattleyas, like C. Trianae, C. labiata, C. Mossiae, C. gigas, C. Gaskelliana, and C. aurea, are taking greater care of their plants and are propagating them freely from back bulbs, which in a couple of seasons make good specimens in this climate.

Miltonia vexillaria is an Orchid not usually seen in first-class condition, but we have one commercial grower in Framingham, Mass., who has a whole house of them: many are big specimens in 8-inch and 9-inch pots, and in their season they make a glorious show.

Mr. J. T. Butterworth, the proprietor, hails from Lancashire, and grows all Orchids well; specially fine are his Odontoglossums, Cypripediums, Cattleyas, and Cymbidiums. A good market is found for the sprays of Miltonias.

In connection with the coming big Orchid show here there will be absolutely free admissions to the public throughout the exhibition. A number of lectures on Orchids will be given, some of them illustrated. Other features will be a collection of about 1,000 Orchid paintings, which will include the collection of the late Mr. Leemann in England and others. There will also be on exhibition an extensive collection of books on Orchids. It is believed that this combination of features will help to draw a record attendance to the coming show. There are about one hundred classes for groups and plants and additional ones for cut flowers.

Our native North American Orchids have not been ignored. Special provision is made for them in the schedule and it may be of interest to state that there are no fewer than 200 species of Orchids found in the United States, although the common popular impression is that there are not over fifty. *William N. Craig, Weymouth, Mass., U.S.A.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

The character of the late summer and autumn of 1923 in Western Scotland differed so widely from the conditions described by Mr. Grove (p. 22) as prevailing in Southern England that it may be worth while noting its effect upon the growth and vigour of Lilies in this district. The preceding summer of 1922 having been unusually cold and wet, bulbs cannot have derived any special vigour from the weather prevailing throughout it.

In 1923 we shared, in common with England, sunless, cold conditions until the end of June; but thenceforward our experience was very different from that of our southern neighbours. We had no visitation of the sub-tropical drought whereof Mr. Grove writes; on the contrary, rainfall was far above the average (5¼ inches in August), and the temperature continued abnormally low. Such conditions are usually expected to promote attack by Botrytis, but strange to say we have never been less troubled with it. Lilium chalcedonicum suffered somewhat severely, but L. candidum and L. testaceum, both very vulnerable subjects, carried clean, shining leaves until the flowers were over, as may be judged from the accompanying illustration (Fig. 19.)

In two or three instances only, where the foliage had become bruised through exposure to rough winds, was there any appearance of Botrytis. The only trace of the disabling effect of the untoward summer of 1922 was that in 1923 L. candidum carried fewer blossoms on the stems than usual. No other species of Lily showed signs of fungous attack, but L. Sargentiae carried fewer blossoms than its wont, and was stunted in growth, few stems rising to more than three feet, instead of the normal four or five. L. regale, L. auratum, and L. monadelphum behaved very well.

I think most growers are inclined to err in regarding Botrytis as the cause of disease in Lilies, instead of merely an indication of lowered vitality in the plant which gives the parasite its opportunity. If we could ensure perfect vigour in Lilies and other plants, parasites might be set at defiance.

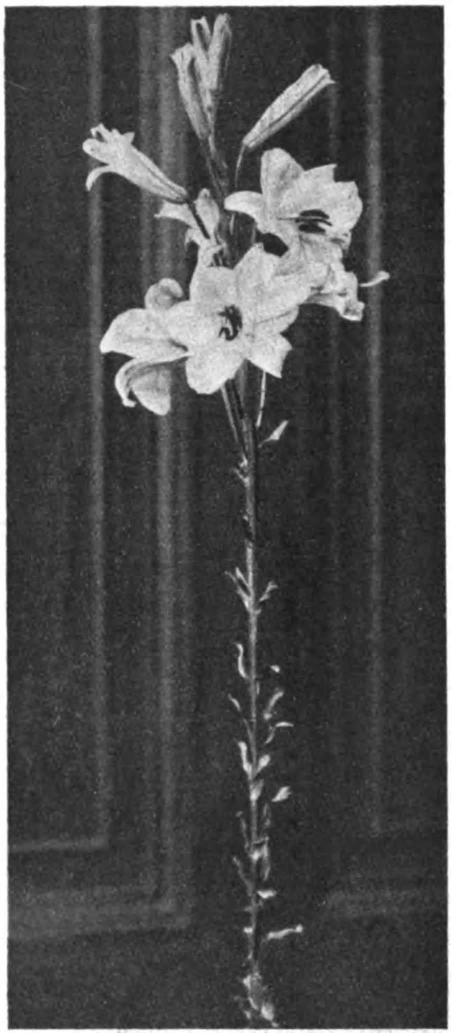


FIG. 19.—LILIUM CANDIDUM AT MONREITH.

In another respect our experience of the bygone summer of 1923 differs from that of Mr. Grove, who reports "a veritable plague of aphis." For three years past our Roses have been almost entirely free from green-fly; so much so that it has been really difficult to find a specimen. In what measure this is due to the vigour of the plants or to the diligence of the great, blue and cole tits that colonise our resting boxes, deponent sayeth not; but this I can affirm that the only plant in the garden that was afflicted by aphis last year is one of Lonicera tragophylla set in the unsuitable aspect of a south wall. This fine Honeysuckle should be given a north or west exposure *Herbert Maxwell, Monreith.*

NOTES FROM WISLEY.

It is the practice of certain gardeners in the commendable interests of tidiness and cleanliness to cut down all and sundry herbaceous plants so soon as they have finished flowering. There are, however, many plants of which the old stems may be a source of ornament to a border which would otherwise be bare throughout the winter. Many varieties of Aster, and in particular those of the ericoides section, are most attractive by reason of their delicate branches and fluffy fruits.

At Wisley the herbaceous borders have not yet been cut over, and although the brown and shrivelled flowering stems may in some cases present a bedraggled and woebegone appearance, there is quite a number of plants still in good preservation, the graceful form and tints of which afford pleasure. Among other plants which attract attention in this respect are Eryngium Oliverianum with its prickly involucre, and Solidago rigida, the old flower heads of which still have a light and feathery appearance. Some of the Artemisias such as A. borealis, are effective, while A gnaphalioides is remarkable for the silvery sheen of the under surfaces of its leaves which have curled up and emphasized this feature. In addition to varieties of Aster ericoides plants of Aster acris are conspicuous by reason of their silken balls of fruits.

In the wild garden Hamamelis mollis is in flower. This plant is flowering equally well in the new shrub border in "Seven Acres." Another scented, yellow-flowered shrub, Berberis japonica hyemalis, is also in bloom. One is grateful also at this time for the berries which still persist on Cotoneaster serotina, Pyracantha angustifolia and on several species of Berberis, while a few highly coloured leaves have weathered the wind, rain and snow. A case in point is Vaccinium virgatum which closely resembles and is possibly a variety of V. corymbosum; the latter however has been leafless for some time. The leaves of Leucothoë Catesbaei and of Oxycoccus macrocarpus, the American Cranberry, are also well coloured.

One of the large Birches in the wild garden has been killed by the Silver-leaf fungus, as indicated by the dull purplish fruit bodies which where found at the base of the dead trunk. In the case of the Birch and also of the Beech trees, silvering of the leaves is often absent and the presence of this fungus in not recognised until the fruiting stage. This dangerous disease is by now only too well known, particularly as affecting Plums and Morello Cherries. It is also on the increase in many varieties of Apples, although Pears are seldom attacked.

Among other garden plants which have been known to have been killed by this pest are Veronica Traversii, Ribes spp., Pernettya mucronata, species of Berberis and tree Lupins. The fungus (Stereum purpureum) is a wound parasite and therefore will not infect a plant unless the tissues are exposed, so that it is advisable whenever possible to treat all cut surfaces with a coating of some protective substance such as gas tar, in order to guard against an attack which so frequently proves fatal.

In the Entomological Department investigations have just been concluded on "false wireworms," the larvae of a fly, Thereva plebia. There was considerable doubt as to whether these insects feed upon living vegetation and it has now been established that they are definitely injurious and will attack Cabbages and Potatos in late autumn. Mr. W. J. Dowson, head of the Mycological Department, is continuing his investigations in the flower-spike disease of cultivated Antirrhinums. It has been found that this disease is caused by the fungus Sclerotinia sclerotiorum, and apparently it affects only the white and pale coloured Snapdragons. The disease first appeared in a greenhouse trial of Antirrhinums conducted at Wisley in 1922. *J. E. G. White.*

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THE EARLY FLORIST.

THE above title does not, as might be supposed, refer to a lover of florists' flowers, but to a magazine of that name. Not that *The Florist* was the first journal to cater for florists, for when it appeared there were already three illustrated periodicals dealing more or less with the subject. There was also at least one weekly, *The Gardeners' and Farmers' Journal*—following closely the lines pursued by *The Gardeners' Chronicle and Agricultural Gazette*—that devoted a large space to florists' flowers under a special editor, whose supply of "literary Billingsgate," poured out on the heads of those florists with whom he found himself in disagreement, was enough to end any respectable undertaking.

Anyway, a section of florists in 1847 determined to have a medium for giving expression to their own opinions, and so in January, 1848, part I of *The Florist* was launched. The modest prospectus indicated that supporters would receive a coloured and plain plate of some flower alternately, the price of each part to be one shilling and the expected demand five hundred copies. The superintendent was Mr. Edward Beck, famous as a raiser of Pelargoniums, assisted by J. Dobson, his gardener. The first part sold to the number of nine hundred, but it was found that even that auspicious beginning would not enable the proprietors to continue without loss unless a very much increased circulation was ensured. It was consequently announced in the December part that unless the 1849 output was greater, publication would cease at the end of that year. One of its financial difficulties arose from the dislike or inability of the advertisers to meet their liabilities, a fact which is certified by part of the dedication to the first volume being "To those who have advertised in its pages, *and paid for their advertisements*"—the latter phrase in italics! Mr. Beck gave his readers fifteen coloured plates instead of the six promised. Among the contributors were Carey Tyso, the Ranunculus expert; Hoyle, of Pelargonium fame; Gaines, a leading plant grower; Chater, the reviver of Hollyhock culture; Dr. Horner of Hull, a Tulip fancier and father of the Rev. F. W. Horner, the noted grower of Auriculas; Edwards, who represented Carnations and "did" Florists' Flowers for *The Gardeners' Chronicle*; Thomas Rivers, who at that period was greatly interested in Roses; and Charles Turner, a general florist who took over the editorship of *The Florist* in 1852, and later was assisted by Spencer of Bowood.

The volume includes lengthy lists of the florists flowers of the period, mostly with their raisers names attached. The plates are much superior to those in other floricultural periodicals, and they were still better a little later when supplied by Andrews. I have never forgotten the wonder the beautiful pictures of flowers excited in me when a wee boy at school, especially those of Fuchsias, Cinerarias, and Obeliscaria pulcherrima, in 1856. Then how beautiful were the representations of Dahlias! Before long, the title of the work was extended to *The Florist, Fruitist, and Garden Miscellany*, and latterly, to *The Florist and Pomologist*.

Among fruits, Bowood Muscat is shown on an early plate, and Cox's Orange Pippin Apple on another, but the latter is not a good picture of the variety. It had just been shown against Ribston Pippin and, on the occasion, Robert Hogg raised some discussion by asserting that the latter was the better variety.

In Volume V is a description of a new fashion in flower gardening as pursued at Enville Hall, and which is here termed the "Ribband system," so universally adopted later as the "ribbon border." The broadening of the management is still more evident in the succeeding volume, which contains a detailed account of the chief plants employed in bedding. It may excite wonder in those who imagine that Pelargoniums, Lobelias, and Calceolarias comprised the plants employed in flower gardening to be informed by the above article that they were only a few among many. Verbenas vied in number with Pelargoniums, and of these latter, some of the variegated sorts are still in existence, while it is interesting to note among the "hybrid bedding varieties," Pretty Polly and Purple Unique, better known as Rollisson's Unique. A few Fuchsias are named, and a very large selection of Petunias. Calceolarias, as named, are all out of date, and they comprised a range of colours from yellow to dark crimson. Other plants worth quoting are Salvia patens and S. fulgens, Phlox Drummondii, Ageratum, Bouvardia, Anagallis, Lantana, Heliotrope and Cuphea.

The Roses recommended are Géant des Batailles, Aimée Vibert and Madame Fabrier, varieties still to be found in old gardens. Tall growths were pegged down. In this volume a series of papers on the War(s) of the Roses was commenced by "S. R. H.," which had far-reaching consequences, for in the next volume he concludes No. 2 thus: "Why should we not have, near some central station (such as Rugby), A Grand National Rose Show? A feast of Roses, at which the whole brotherhood might meet in love and unity, to drink in prize cups of silver, 'Success to the Queen of Flowers.'" On this suggestion, the National Rose Society was founded, and the first exhibition was held the next year, not at Rugby, but in London with S. Reynolds Hole as Secretary. In the June part for 1858, that gentleman, still above the signature of "S. R. H.," in the exuberance of his feelings burst into rhyme, of which the concluding stanza is here given as a specimen:—

> ". . . . On they came
> In all their lovely wilfulness to claim
> First prize for beauty; and each damsel glows
> In all her radiance, to outshine the Rose!
> Who wins the battle? Reader go and see,
> Judge for thyself, which power most potent be.
> Ne'er was such warfare, since the world begun,
> Ne'er so much rival beauty, 'neath the sun
> As shall th' admiring, love-struck world enthrall,
> July the First, and in St. James's Hall."

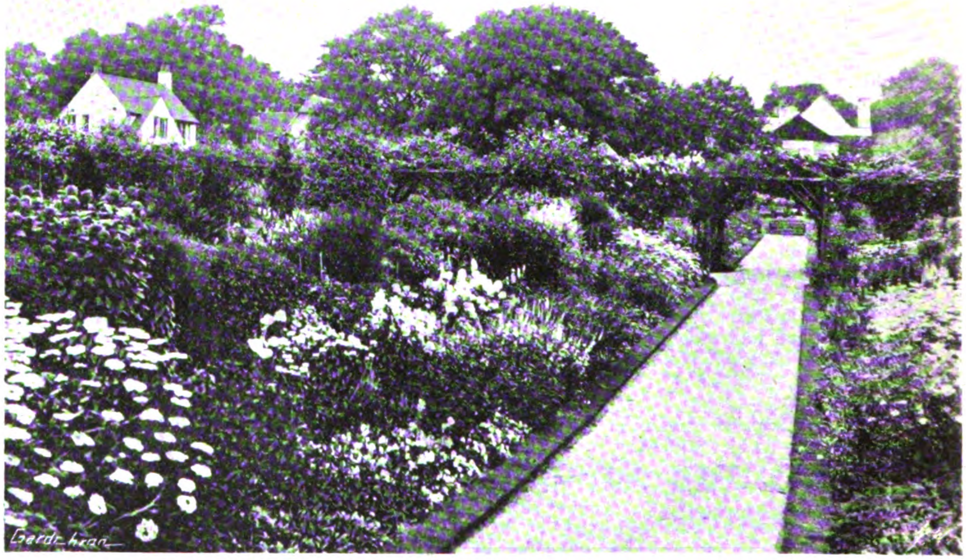


FIG. 20.—CLIVEDEN, ESSEX: THE HERBACEOUS BORDERS.

Subscribers paid 10s. each, and the ticket for the show was 5s. to non-subscribers. The schedule comprised fifteen classes, the prizes consisted of thirty-six silver cups valued at £150. The takings at the door amounted to £100; Hole was the winner of two second prizes. *The Gardeners' Chronicle* of July 3, in a leading article, was first in the field with its congratulations which were of the heartiest description. Mr. Hole, it needs hardly be said, was afterwards the well-known Dean Hole. He had already written anonymously *A Little Tour in Ireland*, a book overflowing with fun about "reeks," "tame Golden Aigles," etc., and later, the best of his books, *A Book About Roses*, first published in *The Gardener*, and in the early seventies *The Six of Spades* in *The Garden*. Another contributor at this time was the Rev. Honeywood Dombrain, who wrote under the signature of "D., Deal," whither he had come not long before from Ireland. I am not sure, but, I think, about 1870 or a little earlier he was engaged in the editorial department of *The Florist*, but that is extending further into the future than is intended by these few notes.

R. P. Brotherston.

THE GARDENS AT CLIVEDEN, ESSEX.

DURING the summer of 1923 I had the pleasure of inspecting the gardens of Frank Copeman, Esq., Cliveden, Shenfield, Essex, and found a great extension of gardening. The place was only taken over fourteen years ago, and then consisted for the most part of meadowland, and was in that condition when I first saw it. The soil is naturally very heavy, yet it is remarkable how everything outdoors succeeds upon it, as in other parts of the county.

When the garden was first extended beyond the lawn, trees and shrubs were largely planted during winter, yet the Magnolias have been a great success. Picea pungens glauca is now twelve feet high and the picture of health. The same may be said of Azara microphylla, notable for the size of its leaves. The blue-flowered Caryopteris Mastacanthus was three to four feet high, this being quite unusual in my experience. Pyracantha angustifolia is usually regarded as a tender shrub about London, even on a wall, but here it was healthy and flowering freely quite in the open. The uncommon Hydrangea quercifolia was also growing strongly and flowering. Interesting climbers on posts were Smilax sagittifolia, S. caduca and Stauntonia. The neat-growing pyramidal Ilex Pernyi was eight to nine feet high; and a large number of bushes of the small-leaved I. crenata were planted about in the shrubberies. Other shrubs of interest were the Purple Filbert, Spiraea bracteata, Viburnum theifera, and Philadelphus purpureo-maculatus.

A small stream runs through the garden and into an old pit which is utilised for growing aquatics in variety. The stream is masked by shrubs, and its rocky banks are planted with alpine and other rock-garden subjects. A retaining wall supports the end of the lawn, and this has long been planted with appropriate plants. Thymus Serpyllum lanuginosus covers a space four feet square.

The Rose garden is on a lower terrace below this wall and includes many up-to-date varieties. Mr. Copeman is critical in the matter of colours, but does not favour the semi-double varieties, whatever their hue, the more substantial ones being preferred. Herbaceous beds and borders are numerous near the walks and include a great variety of useful plants. Amongst them were freely-flowering patches of Œnothera macrocarpa, Bahia lanata, Erodium Manescavii, Poterium obtusum, and the beautiful Calamintha grandiflora, a yard in diameter.

A flower garden (Fig. 21) on grass and surrounded by hedges included beds of various subjects, such as Pelargonium Mrs. Pollock in quantity, the most reliable golden tricolor variety for bedding. Cuphea ignea was also fine. Curiously enough, the double Marguerite Mrs. F. Sander persists in producing fasciated stems with deformed flowers under a variety of treatment, including culture in vases. Some of the longest hedges consist of the Cherry Laurel, as upright, narrow, and as well-furnished as Box, Yew, or Holly could be.

Originally there was no glass on the estate, but that has been rectified from time to time until there are houses for most purposes. Mr. Copeman's taste is catholic, for he is as fond of tender exotics as hardy plants. A collection of Hydrangeas includes H. Sargentii, six feet high and carrying four heads of bloom; H. Madame E, Mouillière, H. La Marne, rose; Radiant, rosy-pink; Parsival, dark red; and Lily Mouillière, pink; Lasiandra macrantha and Isoloma elongata were fine plants, the latter four to five feet high, with scarlet flowers and woolly leaves rufescent beneath. In a cooler house were Tricuspidaria dependens and Desfontainea spinosa; the latter flowering freely at three feet high. A house used for propagation contained a variety of stove plants, such as floriferous examples of Saintpaulia ionantha and Anthurium Andreanum. Fine foliage plants were represented by Acalypha albo-marginata, Cissus discolor in fine form, and many others, which reminded me of the gardens of olden times. Three hundred and fifty plants of the best Chrysanthemums were being grown in pots.

The vineries were well furnished and carried heavy crops of grapes, testifying to the skill of the gardener, Mr. Hawkes. The varieties grown are Lady Hutt, Prince of Wales, Lady Downes, Black Hamburgh, and Buckland Sweetwater. The Peach house contained a number of fine trees, such as Nectarine Pine Apple, and Peaches Peregrine, Hale's Early and Royal George, the first two carrying the heaviest crops and bespeaking good treatment. Outdoor Peaches, planted by some previous owner, refused to grow in the heavy, natural soil. Some Figs are grown, but the chocolate-brown, deep, red-fleshed Bourjassotte Grise is the favourite. In the orchard house was a collection of fruit trees in pots. Well-fruited Apples were Charles Ross, Lady Sudeley, Cox's Orange Pippin, and James Grieve. A heavy crop of Plums was carried by Jefferson, and less heavy ones by Kirke's Blue and Golden Esperen, the first and last being Gages of high quality. Doyenné du Comice and Marguerite Marillat were well-fruited Pears. *J. Fraser.*

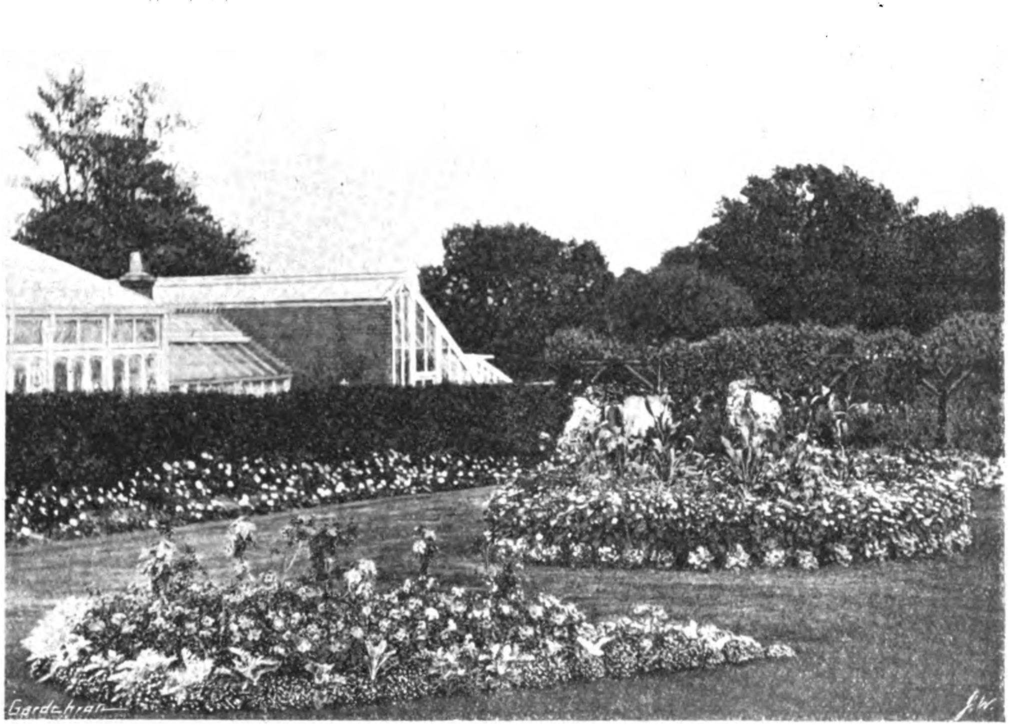


FIG. 21.—CLIVEDEN, ESSEX: FLOWER GARDEN AND GREENHOUSES.

THE ROSE GARDEN.

THE BEST BEDDING RED ROSE.

AN ideal bedding variety, besides possessing the three primary qualities of a Rose—colour, form and fragrance—should, in my estimation, be floriferous, and so far as possible a continuous bloomer; it should also have a suitable habit of growth and be resistant to such troublesome diseases as mildew and black spot; its flowers should be borne on stiff stems, so that they are held erect and show to advantage, and they should be unaffected by rain, so that in wet weather the buds about to open do not fall or rot.

Although there are perhaps more varieties of red Roses than any other colour, the ideal red Rose for bedding purposes is yet to be introduced. There is little doubt that if a plebiscite were taken, General McArthur would be voted the best red Rose for beds. This view is strengthened by the fact that for the last five years this variety has headed the list of the best kinds for general garden cultivation given in the *Rose Annual*. Notwithstanding its position, it is none the less true, and it may appear strange to those unfamiliar with this Rose, that it is neither grown for market, nor is it seen to any extent in the decorative classes of shows. This is, doubtless, due to its lack of form and colour—brilliancy. In these two respects Richmond surpasses it, and, consequently, is the red Rose one sees chiefly displayed in florists' shops. This and the General are the two best known crimson bedding Roses of the century, and it is a remarkable fact, and one which redounds to their credit, that both were brought out in the same year, 1905, by Messrs. E. C. Hill and Co., of Richmond, U.S.A. If the good qualities of these two Roses could be combined in one and the same variety, perfection from the bedding standpoint for this colour would well nigh be reached. The combination of General McArthur's vigour and fragrance with Richmond's form, brilliancy of colour and floriferousness would provide us with a red Rose satisfactory in most respects for bedding; since in addition both have stiff flower stalks and are resistant to wet and mildew.

General McArthur is one of the most highly perfumed Roses we possess, and its scent moreover, is of the Damask kind, the queen of floral odours. Most likely its fragrance has a good deal to do with its being first favourite among Roses for general cultivation; for it has some conspicuous faults. "It points to the distance we have yet to travel in Rose development, that a Rose lacking so much is still our best bedding crimson." (R. Murrell, *Rose Annual*, 1922, p. 68). Richmond is scented, but if I were classifying Roses according to perfume this variety would be designated fragrant, and the General very fragrant, with a star.

A defective feature of General McArthur, not always recognised, and one which tells against its bedding qualities, is its want of continuity in its flowering. The blooms appear in bursts, with flowerless intervals. Mr. Darlington has called attention to this (*Rose Annual*), 1919, p. 68), and I have noticed the same, in fact, with me a bed of this variety is almost flowerless during August. This defect is due to the slow pushing out of the buds which produce the secondary flowering shoots. The primary shoot has to complete its flowering before the buds in the leaf axils below begin to move for the production of the new flowering stems. In this respect General McArthur behaves more like a H.P. than a H.T. Plenty of bloom appears in June-July and again in

September-October, but few between. In a variety which approaches the ideal of a continuous bloomer the secondary shoots are well advanced by the time the primary ones cease flowering. Richmond behaves so, and thus is a more floriferous variety. But its vigour leaves a good deal to be desired, and sometimes its shoots are too beset with flower buds to give blooms of quality, unless resort be had to rigorous disbudding.

General McArthur prefers a strong soil, and cool climate. Richmond is partial to a light soil and likes more heat. Where it succeeds preference, I think, should be given to it, even to the sacrifice of some perfume. It is a wonderfully bright Rose, and keeps it colour well, both on the plant and when cut. It is long in falling, and even though when fully expanded it loses its exquisite shape, there is still an attactiveness about it in its loose state.

There are a few other scented crimson Hybrid Teas which approach the above two as regards their suitability for beds. Of these, perhaps, Mrs. Edward Powell comes first. Mr. Darlington, for example, prefers it to General McArthur (*Rose Annual*, 1919, p. 67). It is brighter and more floriferous, but its scent is by no means so pleasing, nor is it superior in shape. Lieut. Chauré is finely formed, but its colour is often not sufficiently bright, and I should not consider it a particularly good bloomer.

A crimson Rose which has hardly received the attention it deserves is Dora van Tets, of Dutch origin. It has long-pointed buds, very suitable for a buttonhole, and is full of fragrance. Its defects are of the negative order—want of vigour and size in its flowers. If admitted to the Rose garden, it should occupy a front position on account of its low stature.

If fragrance is not essential, then the list can be considerably extended. There are two odourless or feebly-scented varieties surpassing the above in brightness and floriferousness, viz., Red Letter Day and K. of K.—wonderful Roses in their way for vivid and fast colouring. As regards petalage they are nearly single, and their mode of growth is apt to be too spindly. K. of K. is the brighter, and carries at times a little scent. Red Letter Day is inclined to black spot. Either make a glowing patch of colour, but the individual blooms are rather meagre. They may be looked upon as improvements on Marquise de Salisbury and Ecarlate, their strong point being the fastness of the colouring, which alters little with the age of the flower. Consequently, they are almost devoid of the common defect of red Roses known as "blueing." Covent Garden is another bright red Rose, desirable in most respects as a bedder, save its want of fragrance.

So far bright red Roses in distinction from dark red ones have been considered. It is convenient to divide the reds into these two groups, though no hard and fast line can be drawn between the two. In fact, certain Roses according to climatic and soil conditions may at times come within either category. For example, that pure Hybrid Perpetual, Hugh Dickson, when it gives its richest tints, might be put among the dark crimsons, but as usually seen it is of a medium red shade. With me, Red Letter Day comes fairly dark. Coolness and moisture appear to form the deeper colouring.

A really satisfactory dark crimson bedding Rose is still a desideratum. The new American Rose, Sensation, or the recent variety, Dr. A. T. Petyt, from its description in the *Gardeners' Chronicle* (December 29, p. 375) may supply our want. At present our choice seems to be between Chateau de Clos Vougeot, Hadley and Hoosier Beauty. All carry perfume, but each has one or two prominent defects. Chateau is decidedly the darkest and also the most floriferous, but it has very poorly shaped blooms and an awkward manner of growth. Hoosier Beauty produces finely formed flowers, but its shoots are so lax that its flowers are apt to droop. Hadley is satisfactory in most respects, save that its blooms soon "blue." There is also H. E. Richardson, which gives a fragrant buttonhole Rose of a dark red colour, but it is too tall a grower and one gets more growth than bloom. Of recent Roses, Lady Maureen Stewart is promising as a dark crimson for beds, though its form leaves a good deal to be desired.

All the above-mentioned Roses belong to the H.T. class, which for floriferousness and continuous blooming, greatly surpasses the older H.P's. Some of these latter, however, are not to be despised for beds, provided we do not mind bloomless intervals. Of the lighter crimsons for the wetter, cooler parts of Britain and for strong soils, Captain Hayward comes first. It is vigorous and has a good habit; its flower is borne on a stiff stem and is impervious to rain. Hugh Dickson is too rampant to be manageable in beds unless it be pegged down. Fisher Holmes is a good grower, though rather sprawling in its habits; it produces a finely shaped bloom. Victor Hugo where it succeeds should not be overlooked, for it bears a very richly-coloured, shapely flower. Of the handsome dark crimson H.P.'s, Prince Camille de Rohan, Charles Lefébvre, Commandant Félix Faure, and the old favourite, Général Jacqueminot, are about the pick, but they are particular as to soil and will not succeed everywhere. All the H.P.'s mentioned carry perfume.

If mass of bloom continuously produced without quality in the individual flower will suffice, then the polyantha pompons come first. Jessie in the past has been chief favourite among the reds, but for vigour and rich colouring, the new polyantha Nurse Cavell is to be preferred. With this class of Rose at present one has to be content with little or no fragrance. None of the crimsons, so far as I know, and precious few of the others have scent. *J. P. Carlisle.*

CULTURAL MEMORANDA.

EARLY MELONS.

To obtain a crop of ripe Melons during May, seed should be sown now. Small sixty-sized pots are the best receptacles to use as seed pans, and these should be well washed and crocked. The soil should consist of a mixture of turfy loam, leaf-mould and fine charcoal, and it should be placed in a warm house a few hours previous to using it. When the soil is sufficiently warmed, fill the pots loosely, and then press one or two seeds, point downwards, in each, and just cover them with the soil. At this dull season of the year, a hotbed of leaves and stable-litter should be made in the propagating frame, and when the heat of the bed is just on the decline, plunge the pots in the fermenting material, up to their rims. Cover them with a sheet of paper, and, as soon as the young plants appear, remove them to a shelf in the same house in the lightest position possible.

The seedlings will not require much water if the soil was moist at the time the pots were filled. As they grow they should each have a neat stake placed to them, and a little fresh soil placed on top, and pressed down firmly.

The young plants will grow rapidly under this treatment, and the weaker ones should be removed and discarded. When the pots are full of roots the plants may be shifted into large sixty-sized pots, using similar compost, but in a little rougher condition. Pot firmly, as this will tend to keep plants sturdy. In the meantime, the house intended for their reception should be cleansed thoroughly with hot water and soft soap.

A hotbed of leaves and litter should be made on the stage, and the materials pressed very firmly. The bed should be about two feet wide and eighteen inches deep, and when it has settled place a layer of good turves, grass side downwards, all over the surface and at each place intended for setting a plant put one extra turf. Sprinkle bone meal and old mortar rubble over the soil and work these materials below the surface. When this has been done make the soil thoroughly firm again, allow a day or two for the whole to settle, and if the young plants are ready turn them out carefully, make a hole in each turf large enough to take the ball of soil and plant them, taking care not to injure the roots. If a few roots can be spread out and covered with soil so much the better. When the bed is completed water the plants and place a collar of tin or a ring of soil around each stem to prevent water reaching it in the future. Neatly stake and tie each plant to the bottom wire of the trellis. Maintain a temperature of 70° by day and 65° by night, a matter of 5° more by day will not harm and the temperature may be allowed to reach 85° or 90° by sun heat.

The paths and walls should be damped twice daily, but too much syringing at this time of the year is not advisable. An occasional light damping of the plants overhead when closing the house in the afternoon will be very beneficial to them, but in this respect much depends on the situation of the house and the weather.

The plants should be kept tied to the trellis, but tie loosely to allow of the bed sinking, which it most certainly will do as time goes on. The laterals are best tied out each side of the main stem, which should be stopped when it has grown far enough up the roof, and only sufficient growths should be trained in to furnish the trellis without crowding the plants. Never pinch a lateral off close to the main stem but always retain one leaf and a joint, otherwise canker may set in.

Attend carefully to watering the plants and always use water that has been warmed to the temperature of the house. Do not use stimulants until after the fruit has set. Every lateral that has a fruit showing should be carefully trained to the trellis and stopped at two joints past the fruit.

At this stage the sun will be rapidly gaining power, and the house should be ventilated early in the mornings of bright days, otherwise the foliage will scorch. The house may be closed quite early in the afternoons in order to conserve all the sun heat possible, which is always to be preferred to fire heat.

When the plants are in flower, they should be watched carefully, and each embryo fruit pollinated; efforts should be made to set a sufficient crop on each plant at once, so that when the surplus fruits are pinched off, the others to form the crop will all develop together. Two or three fruits on each plant are ample for these early Melons, and if one fruit is seen to be swelling in advance of the others, it should be removed, otherwise the others would turn yellow and eventually drop. When the plants are in flower it is a wise plan to admit a little air day and night, using rather more fire heat and less moisture. This will tend to a much better set of fruit.

The plants should be afforded every encouragement to develop, watering them on frequent occasions with diluted liquid manure, and occasionally using a concentrated fertilizer. Keep the growth thinned and, as the fruits increase in size, support them with boards or Melon nets.

A sharp watch should be kept for canker, and if this disease is detected, dust the affected part with lime and repeat the application until the place is quite dry. Canker is most likely to appear in very damp houses, or when water is poured on the stem of the plant in dull weather.

Red spider is another troublesome pest, but this will not appear to any extent if the house is properly ventilated and syringed. If detected, sponge the leaves with hot, soft, soapy water.

As the plants approach maturity, and the fruit shows signs of changing colour, rather less water will be needed, but on no account discontinue the supply of moisture altogether, or the flavour of the fruits will be inferior. Maintain plenty of warmth in the pipes, and admit a little air both night and day, if the weather is favourable, as this will assist the perfect finish of the fruits, and also enhance their flavour. *R. W. Thatcher.*

COLONIAL CORRESPONDENCE.

HYBRID WATSONIAS.

Probably a few notes regarding the glorious hybrid Watsonias raised by the late Mr. Cronin when Director of the Melbourne Botanical Gardens, may interest your readers. The initial cross was between W. O'Brienii and W. rosea, and by careful selection and cross-fertilisation we now have many varieties in white, pink, lilac, salmon and purple shades, all very free flowering and of excellent form. Some varieties attain a height of 7 feet while others grow no more than 2½ feet to 3 feet. All are grown here in Australia in the open ground and are of the easiest possible cultivation, indeed W. rosea and W. O'Brienii are almost weeds. I remember upwards of twenty years ago, when I worked in Messrs. James Veitch and Sons' nurseries at Chelsea, we grew W. O'Brienii in pots for Easter decoration, and it has occurred to me that these vastly improved varieties would be ideal for pot work. For instance, the variety Hobart a beautiful white sort with well-formed, erect, round flowers and tall branching growth, should prove very useful for decorating in spring and early summer. I believe it was the late Mr. Cronin's wish that the most distinct varieties should be named after the capital cities of Australasia, and I agree with Mr. E. H. Wilson, of the Arnold Arboretum, that this new race of hybrid Watsonias be called Watsonia Croninii in honour of the originator.

The corms increase very quickly. About five years ago Mr. Cronin gave me a corm each of about fifteen varieties in exchange for other plants, and I now have twenty-five to fifty corms of each variety. Many seedlings flowered for the first time this year, some showing new shades of colour, and we have hundreds of seedlings coming on grown from seed saved from the best varieties.

I trust the foregoing few lines will be of interest to your readers. We are very keen on gardening "down under." *W. R. Warner, South Camberwell, Victoria.*

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

Young Lads and Horticulture.—I read with interest the note by Mr. A. J. Macself on "Young Lads and Horticulture," which appeared on p. 379, vol. lxxiv. It is almost a plea, and certainly one of the right kind, but there is a passage, almost at the beginning, which probably caused not a few comments among the younger members of the horticultural profession. I refer to the words ". . . one realises with some concern that there are very few lads and youths in gardens and nurseries to-day who show signs of making good gardeners and plantsmen to carry on the craft after the veterans of to-day have laid down their tools." I realise, quite well, that there is not the least bit of prejudice in those remarks; Mr. Macself goes on to explain the pity of present-day circumstances rather than to condemn the youngsters, but I cannot see why there should not be young men as eager to learn gardening to-day as there were twenty or fifty years ago. As one travels about the country one can still find young men and youths inhabiting the garden bothies (where they are not closed!) and, in most cases, they are eager to learn the thousand and one items which combine to make up the practice of a successful gardener. Taking into consideration the fact that many of the once famous gardens are now completely closed, and others, in which, at one time, twenty or more men were employed, are now, perhaps, merely kept tidy by a few hands; these and other facts, equally discouraging, compel one to wonder if, after all, those young men and youths are not worth at least a little admiration for plodding along gaily. I know of several head gardeners and men in authority who do not give the young men under their charge much encouragement. They try to impress those under them that they are too well cared for, repeatedly telling them what *they* had to do when they first started gardening, and what meagre wages they had to be contented with when they were boys, improvers, journeymen, etc. To tell them of the existing circumstances of those days is certainly no wrong, but I hardly think the young gardeners of the present day want it drummed into them as though it were a necessary part of the present system of teaching. It is true there are not so many lads keen to take up gardening as there were years ago, and there must be several reasons for that. One is almost brought to say that perhaps it is desirable there are not so many lads eager to take up gardening to-day because, as Mr. Macself remarked, a lad must now earn what was formerly the wages of a man, and the consequence is that of necessity fewer lads can be employed. I am certain that the gardens of twenty, thirty, forty or fifty years hence will, in so much as skill has anything to do with it, be the equal of those of to-day or yesterday. *H. W. Stenning.*

Rose Fanny Oppenheimer.—I thoroughly fail to understand the contradiction which is made by Messrs. G. McGredy and Son (p. 17) in regard to my reference (p. 370, vol. lxxiv) to Rose Fanny Oppenheimer. I invite them to peruse my note again. Not one word is mentioned about habit. I merely stated that there were other considerations than colour. I sincerely hope that my opinion of this, undoubtedly, beautiful Rose, may be altered after experience of it, but that, of course, can only be obtained by actual trial. No doubt this variety will be seen at the Wisley trials, and its behaviour may confound its judges at the Rose Show. Time will tell. Two gentlemen who saw the variety growing in the nurseries, it appears, informed its raisers that it was the most beautiful Rose they had ever seen. Seven judges, I believe, did not consider it worthy of the Gold Medal award. However, time will prove whether the judges were wrong or not. *George M. Taylor, Edinburgh.*

Lapagerias Out-of-Doors.—Your readers may be interested to learn that we have both the red and white Lapagerias out-of-doors here, against the wall of a Melon house, where they bloom profusely. *(Mrs.) W. Allhusen, Pinhay, Lyme Regis.*

—— In support of Mr. George M. Taylor's statement (page 28) that the hardiness of this plant is greater than is supposed, I may state that last month I saw a very fine specimen trained up the trunk of an old tree by a woodland walk in the gardens of Mount Usher, Co. Wicklow. Its bright red flowers were striking and handsomely effective on a dismal December day. *J. Matchett Watson, Killiney, Co. Dublin.*

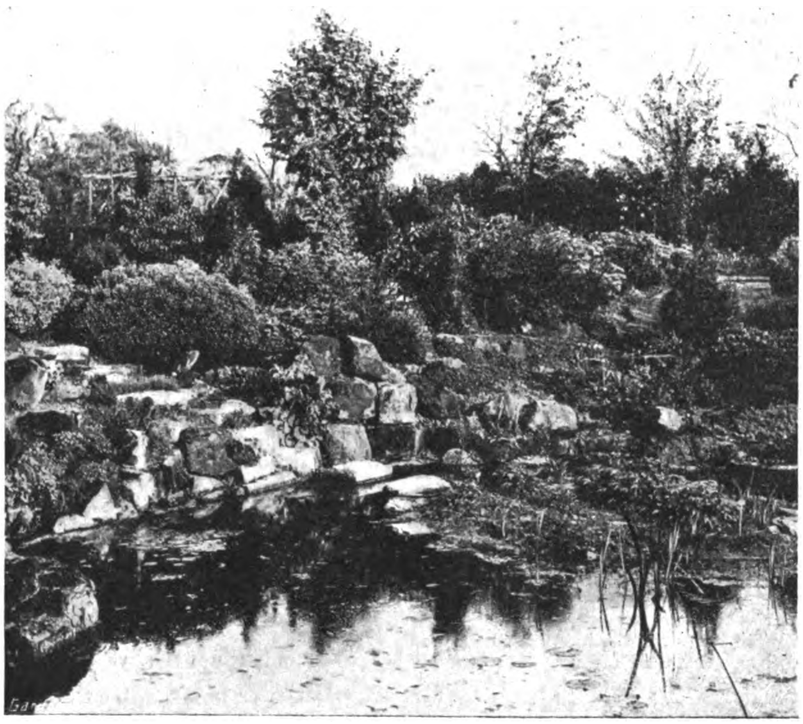


FIG. 22.—CLIVEDEN, ESSEX: LILY POOL AND ROCK GARDEN (SEE P. 51.)

Coloured Brooms.—Your correspondent *T.* writes (page 21) that there is no other Broom with anything like the same colour as Cytisus Dallimorei. In a literal sense this is correct but possibly the intention was to convey that no other variety possesses so remarkable a colour. In this case *T.* cannot yet have seen the new crimson Broom, Dorothy Walpole, which originated at Mr. Walpole's famous garden in Co. Wicklow, and will be in commerce this year. This novelty gained a Silver Medal of the First Class at the Ghent International Show last April, followed by an unanimous Award of Merit from the R.H.S. in May last. It far surpasses C. Dallimorei both in colour and habit of growth, being rather more vigorous than C. Andreanus but with flowers of a beautiful rich crimson colour, not at all like C. Dallimorei which is a washy magenta by comparison. Although justifiably regarded as a very remarkable break in colour, C. Dallimorei has always been considered by the writer as prettiest when seen as a forced plant, indoor treatment clarifying the colour and minimising the magenta shade which is pronounced on plants grown out of doors. *J. Matchett Watson, Killiney, Co. Dublin.*

VEGETABLE GARDEN.

THE TURNIP--BRASSICA RAPA.

The Turnip is one of the most widely distributed vegetables to be found in Europe, nearly every country having contributed its quota to the lengthy list of varieties now in cultivation. Further, if names count for anything, it has also been found in two separate countries in India, viz., the scarlet Kashmyr, an all red, flat round variety in the country of that name, and the White Nepaul, a flat, white strap-leaved variety, which is supposed to come from the country after which it is named. The latter variety, however, is quite identical in appearance with the white form of the Hungarian Red Top White Stone, or as it is almost commonly known as the Red American Strap-leaved, so that Nepaul, as the country of origin is, at any rate, doubtful.

The Turnip, so far as I am aware, has not been discovered in a wild state in either North or South America, but few introductions from the eastern hemisphere into that country have been more heartily welcomed by the American people than the humble Turnip.

The reason is not far to seek. It is sufficiently varied to satisfy the most exacting cultivator and will succeed in a great variety of soils. There are long, oblong, flat, round, or square forms. Its colouring (external) ranges from pure white to jet black and almost every shade between except blue, while internally the pure white and golden yellow harmonise with its outer shell. Its pleasant flavour, when properly cultivated and properly cooked, the ease with which it can be grown, and its nutritious qualities combine to place it in the front rank of table vegetables. There are forms adopted for forcing, producing roots of about two ounces in weight, and others adapted for open air culture, some for cattle feed; producing roots nearly thirty pounds in weight, and all furnishing pleasant and healthful food for either man or beast. Happily, too, this food is most abundant, and in the best possible condition, when it is most needed and appreciated.

The culture and development of the Turnip appears to have been contemporaneous with civilisation, for we find that the versifying Spanish horticulturist Columella, who flourished at Rome during the reign of Claudius at the dawn of the Christian era, in his celebrated work treating of the several kinds of vegetables which are proper for field culture recommends the cultivation of Rapa in plenty, "because," says he, "the roots which are not wanted for the table will be eaten by cattle." It is a fair inference from this that the uses and value of the Turnip were well understood at any rate in southern Italy at this time. It is somewhat remarkable that the most highly esteemed white-fleshed garden Turnips at the present day, the White and the Purple-topped Milan, are also of Italian origin.

Another interesting fact in connection with the Turnip plant is that in some of the western markets and some parts of the continent, the large leaves, while young and tender, are brought to market for table use, while even in fastidious and conservative London a dish of young Turnip-tops is not despised by many in the early spring.

Its health-giving properties are only exceeded by that of the Spinach.

There is little doubt that the cultivated Turnip reached our shores through the Low Countries, for one of the first varieties mentioned was the Early Flat White Dutch, a rather small, green top, cut leaved, very early sort, well adapted for the first open-air sowings in the spring.

Respecting this variety James Justice wrote in 1754:—"This is what is mostly used in this country for early crops and *for eating raw* in May or June of which people here are very fond." The fancy for eating raw Turnips caused endless strife in the early days of the writer between the sheep farmers on the Wiltshire downs and the armies of tramps which loafed through the country lanes and practically lived upon the farmers' Turnip fields.

Respecting the Long French Turnip, Justice states: "this is the best for seasoning soups or Hodge Podge, for two of these in seasoning will give a higher flavour than a dozen of other Turnips, though they are neither fit to be eaten raw or boiled, but for tasting soups only."

Miller, writing at the same date, also mentions the French Turnip, and states:—"The French Turnip is not much cultivated in England, but in France they are greatly esteemed, the roots being small, are boiled whole in the soup." Practically the same conditions respecting this variety prevail at the present day.

Miller also quotes from the *Pinax* of Caspar Bauhinus, Basel, 1671: *Rapa sativa oblonga seu femina*—the Turnip with an oblong root, or Female Turnip, but as he does not give any further details respecting it, I do not know where the female element comes in.

The large tankard-shaped or pudding Turnips more nearly approach the description given. These are still to the fore in three white fleshed, and one yellow fleshed varieties, the latter being in great demand in the south for early sheep feed. A refined form of the Red Top White Tankard, under the name Navet du Palatinat is one of the most popular varieties grown in France at the present time.

Respecting the origin of the name Norfolk as applied to the large, square-shouldered, white-flesh Turnips, Miller writes:—"In Norfolk and some other counties they cultivate on their barren, sandy lands, great quantities of Turnips for feeding of black cattle which turn to great advantage to their farms, for hereby they procure a good dressing for their land, so that they have extraordinary good crops of Barley upon their land which would not have been worth the ploughing if it had not been thus husbanded."

The yellow-fleshed and black-rooted varieties were in existence at the time the foregoing was written but, although the former had obtained a hold in Scotland, Justice dismisses it very curtly by writing of the yellow, "you may have a few for variety, and if they are sown upon moist ground they eat very well boiled in the kitchen way." Further south Miller writes "the long-rooted turnip, the yellow turnip and the blackish-rooted turnip are now rarely cultivated in England, neither of them being so good for the table or for feed as the white-fleshed globe varieties, but a few people grow them for the sake of variety." Opinions have changed since Miller's time.

Drummond of Edinburgh, catalogued in 1754 seven varieties, of which six are standard sorts of the present day. The seventh was the Muscovy Turnip which is not easy to identify, but of this more anon. About this time a more widespread interest was taken in Turnip culture and it grew so rapidly that in Lawson's Agricultural Manual for 1836 fifty-one varieties of garden and field Turnips are described in detail, including the famous square shouldered Dale's Hybrid, which had just then been put into commerce, and five varieties of Swedish Turnip or Rutabagas, the latter at that time rising rapidly in popular esteem. To-day, if a complete list were compiled, and the more important synonyms included, there would be more than one hundred names.

Of this bulky list the very earliest Spring varieties are nearly all flat-shaped roots with cut leaves which are mostly spreading on the ground. As a consequence the roots soon become hot, bitter and woody, so that only very young roots are fit to eat. The White Dutch and Purpled Top Munich are cases in point; the globe-shaped roots such as Snowball and Green Top Stone remain fit for use for a much longer time. The Hungarian Red Top and White Flat Strapleaf half-way varieties possessing a wealth of upright growing entire leafage, which intercepts the direct rays of the sun and prevent the evaporation of moisture—are more satisfactory in this respect. This accounts for the popularity of these varieties in the United States where the acreage planted must be equal to that of all other varieties of garden Turnip put together.

In a collection of Turnips received by Lawson from France in 1837, and grown in the experimental gardens of the Duke of Buccleugh at Dalkeith Park, this variety appeared the most promising, but, states Lawson, "it has received almost no attention from British cultivators."

A tendency in the strain to produce a percentage of globe-shaped roots with cut leaves, has enabled some of the American growers to develop a fine strain of Purple-top White Globe, which produces sufficient leafage to protect the roots in their young state. This has become a very serious rival to the strap-leaved variety, and is highly popular in other parts of the world where similar climatic conditions prevail.

About one-fourth of the Turnips now in commerce are yellow-fleshed varieties, and these vary in size from the tiny Maltese to the giant Dale's Hybrid and other developments of the Yellow Aberdeen type. To Scotland and Scandinavia we owe these splendid introductions in Turnips for cattle feed, while in garden Turnips, Dobbies' Golden Ball has made the name of the raisers famous the world over.

Whether the yellow Turnip is an accidental variation of the common variety is a moot point, which I am disposed to consider with Miller is most unlikely, until positive evidence is available to the contrary.

To those connected with the culture of Turnip seed, it may be interesting to know that about the time of the Battle of Waterloo, a glut of Dutch-grown Turnip seed was dumped on our shores, which led the wholesale seedsmen to offer in their catalogues English grown, and Dutch grown separately, the latter at fully 30% below the home grown article.

While the object of this article has been to set out the origin, qualities and uses of garden Turnips it is fitting that mention should be made of the Swedish Turnips, which, from the point of view of their nutritive qualities, are far superior to the highly esteemed garden varieties. Our experience during the recent world war when we used them as a substitute for Potatos, amply demonstrates this fact In addition to this the fact that there are several varieties of Swede well adapted for table use is quite confirmatory, and, as a final word, the man who has not eaten a nicely prepared dish of Swede tops has missed a great treat. *S. B. Dicks.*

FRUIT REGISTER.

APPLE BETTY GEESON.

This valuable late-keeping culinary Apple, which keeps until May or June, is deserving of general recognition, owing to the tree being a great bearer, and its small growth; for the latter reason it is well adapted for growing in small gardens. It is supposed to have been raised in Worcestershire and was known before 1850. The fruit is of medium size, about two inches and three-quarters wide, and two inches high; somewhat flat in shape, with obtuse ribs on the side.

The skin is smooth and shining, bright yellow in colour, with rose colour next the sun.

The eye is large and open; the stalk is slender and about half an inch long. The flesh is white, tender and very refreshing. In my opinion the variety Betty Geeson is one of the best cooking Apples in cultivation. *Pomona.*

SOCIETIES.

READING AND DISTRICT GARDENERS'.

The Annual Meeting of this Association was held in the Recreation Club Room, Abbey Hall, Reading, W.1., on Monday evening last, when the President, Mr. Councillor F. E. Moring, presided over an excellent attendance of Members. The Annual Report and Balance Sheet for 1923 showed that the Association is in a flourishing condition, the membership steadily increasing and the financial position sound. The lectures have been varied and of a practical character, the discussions of great educational value and the competitions keenly contested.

Among the officers elected for 1924 were:—President, Mr. Councillor Frank E. Moring; Vice-Presidents, Mr. Alderman F. B. Parfitt, Mr. Leonard Sutton, Mr. E. P. Foquett Sutton; Chairman, Mr. M. Goddard, The Gardens, Bear Wood, Workingham; Vice-Chairman, Mr. A. W. Gower, The Gardens, Calcot Grange; Hon. Treasurer, Mr. A. H. Leaver; Committee: Messrs. E. Blackwell, A. E. Barnes, A. H. Falkes, H. C. Loader, T. Martin, C. Moulton, H. Reeves, F. Townsend and D. Turner (Reading), F. Alexander (Theale), W. Chislett and J. Young (Wokingham), A. J. Cobb, H. H. Cook and R. J. Lloyd (Shinfield), F. Goodyer and A. Goodyer (Calcot), F. J. Green (Aldermaston), H. Wynn (Goring Heath), and J. Wynn (Checkendon), with H. G. Cox, Osmington, Hamilton Road, Reading, Hon. Secretary, and Mr. E. J. Dove, Assistant Hon. Secretary.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT,

The Monthly Meeting of this Society was held in the R.H.S. Hall on Monday, January 14, Mr. C. H. Curtis presiding. Nine new members were elected.

Four members withdrew interest amounting to £14 6s. 5d., and two members over the age of 70 years withdrew £51 from their deposit accounts. It is with regret that the Committee learnt of the death of an old colleague, Mr. Edwin Burge; a vote of sympathy was passed to his family. The death certificates of four deceased members were produced and the sum of £152 5s. 3d. was passed for payment to their nominees, plus the extra £10 funeral benefit in each case. The sick pay for the month on the ordinary side amounted to £85 8s. 10d. and on the State side to £72 19s; maternity benefits came to £4. The sum of £7 5s. 9d. was granted for dental and optical treatment to insured persons.

NATIONAL DAHLIA.

The first meeting of the General Committee of this Society for the year 1924 took place at the Royal Horticultural Society's Hall on the 15th inst., under the presidency of Mr. Joseph Cheal, V.M.H.

It was the unanimous opinion of the Committee that in order to justify the existence of the Society an effort should at once be made to bring before the horticultural public the merits of the various types of the Dahlia now cultivated and exhibited, it being realised that few other than enthusiastic Dahlia growers, were aware of the marvellous progress made in the introduction of new varieties so useful for garden and general decorative purposes, and whose flowering period extended from July until the advent of frost.

It was decided to form a special fund for progaganda, and that the contributions thereto should be made by the trade growers. Handsome sums of money and valuable assistance in other directions were at once promised by certain members present, and the Hon. Secretary was instructed to communicate with all trade growers interested in the Dahlia, seeking their support.

It was reported that the Royal Horticultural Society had arranged with Mr. A. J. Cobb, who holds the position of Horticultural Superintendent of the University College, Reading, and is a member of the Committee of the National Dahlia Society, to give a lecture entitled "The Modern Dahlia and the Possibilities of its Decorative uses," at the Royal Horticultural Society's Hall, and such lecture, illustrated with limelight views, will be given on February 26.

The new Hon. Secretary of the National Dahlia Society is Mr. W. Stephens, The Limes, 17, Elers Road, Ealing, W. 13.

NATIONAL ROSE.

The annual meeting of the National Rose Society, held at Caxton Hall on the 15th inst., was well attended, and the members present showed the greatest possible interest in the proceedings. The Deputy-President, Mr. C. C. Williamson, presided in the unavoidable absence of the President through illness.

The Report of the Council for the year 1923 was presented, and from it we gather the total number of members in 1918 was 3,800, whereas at the end of 1923 there was 10,300 members. The Society has continued its publication of useful literature, and the *Rose Annual* for 1923 was one of the best of a long series. Numerous additions have been made in the Society's library, housed in the offices at 25, Victoria Street, S.W., and the demand for the use of these books has now become very large, which is evidence that the library is very much appreciated. Four exhibitions were held during the year, and the spring show held at the Royal Horticultural Hall on April 20 was a pronounced success and attended by a large crowd of visitors. Considering the adverse climatic conditions the summer show held at the Royal Botanic Gardens, Regent's Park, on Thursday, June 28, was a good one, and the large groups of Roses were especially fine considering the adverse conditions. This exhibition was visited by Queen Alexandra and there was a record attendance of over 15,000 visitors. The provincial show was held at Saltaire on July 10 and 11. This was favoured with fine weather; the exhibits reached a very high standard of quality and were greatly admired. The general arrangements at Saltaire left nothing to be desired. The autumn show held at the Royal Horticultural Hall on September 20 and 21 was satisfactory in so far as extent and quality of the exhibits were concerned, but there was insufficient room to accommodate all the entries, consequently, certain classes had to be cancelled. It is also to be regretted that the hall was much too small for the very large attendance on this occasion. The financial position of the Society continues to be very satisfactory, the total receipts for the year amounting to £8,478 4s. 11d. and the total payments to £8,276 4s. 10d., leaving a balance at the bank of £202 0s. 1d. The Society's reserve fund now amounts to £5,371. The income from subscriptions alone amounted to £5,040 16s. 8d., the proceeds from the shows £283 1s. 3d., and advertisements in the Society's publications to £292 19s. 0d. A sum of £1,920 19s. 4d. was expended on publications, while general printing, stationery, advertising and postages came to £999 3s. 10d. Show expenses totalled £492 6s. 3d., and the amount expended on medals, plate and cash prizes came to £569 0s. 4d., while salaries and honorarium amounted to £649 17s. 6d. During the year the Council sold its War Stock and War Bonds, and in place thereof purchased £1,500 Consols and £3,400 Conversion Loan.

The Report and Accounts as presented were adopted. Practically all the officers and committee were re-elected and Mr. C. Brannen was re-appointed auditor.

Following the general business, Mr. Preston Hillary, the treasurer, brought forward the report of the special committee concerning the proposed scheme for the incorporation of the Society by Royal Charter. In this it was pointed out that incorporation would give the Society a legal standing, afford stability and place it on its proper footing among useful societies. The cost of incorporation would be about £150. Mr. Preston Hillary pointed out that incorporation, unless wisely carried out, would severely prescribe the activities of the Council, but he considered that the Charter might be so drafted as to leave the Council a considerable amount of freedom of action without the need for amendments, which were always very costly matters. On the grounds of general expediency he considered it advisable that the Society should become incorporated and urged that steps should be taken to obtain a Royal Charter of Incorporation. Mr. E. J. Holland considered that the report regarding incorporation should have been circulated among members with the notice of the annual meeting, so that there would have been ample opportunity for considering it before the members were asked to come to any decision. For his own part he failed to see that sufficient evidence had yet been brought forward on behalf of incorporation and he considered that it would be entirely out of order if any attempt were made to arrive at a decision on that occasion. Mr. H. R. Darlington was of the same opinion as Mr. Holland, but the Rev. J. H. Pemberton pointed out that the real wish of the Council was to obtain the opinion of the members as to the desirability of incorporation and if they approved of the principle, then the Council would proceed with the matter and eventually submit a draft of the Charter to a special general meeting called to endorse it or otherwise. Many members took part in the discussion, but the majority seemed to be in favour of proceeding on the lines suggested by Mr. Pemberton and on a vote being taken, fifty-five voted in favour of the scheme, provided a special meeting was called to consider the subject in detail.

The next item on the agenda was a very pleasant one, and consisted of the presentation to Miss Willmott, V.M.H., of the Dean Hole Memorial Medal. The Deputy-President made the presentation and referred to the good work Miss Willmott had done on behalf of Roses and particularly on behalf of the National Rose Society. In accepting the medal, Miss Willmott said it was a pleasure to be associated with such an enterprising and highly successful Society, and promised to do all in her power to advance its interests.

On the motion of Mr. Frank Cant, a very hearty vote of thanks was passed to the Officers and Council for their services during the year 1923, to which Mr. Courtney Page, the Hon. Secretary, responded, and on the motion of Mr. C. H. Curtis, a special vote of thanks was passed to the Deputy-President for his conduct of a meeting which had presented not a few difficulties.

ROYAL CALEDONIAN HORTICULTURAL.

The Annual General Meeting of this Society was held on January 9th at 5, St. Andrew Square, Edinburgh, Mr. W. J. Thomson, vice-president, in the chair.

The financial statement showed that there was an excess of income over expenditure of £32 6s. 8d., that the funds at 30th November stood at £1.025 5s. 4d., and that the Horticultural Institution Fund was now £2,060. A sum of £10 each was voted to the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund.

In the report by the Council it was stated that the question of combating insect and fungous pests had been considered, and that proposals had been submitted to the Board of Agriculture for Scotland.

Lord Elphinstone was re-elected Honorary President and Mr. R. Fife was elected President, and the other vacancies were filled as follows:—Vice-President—Miss M. E. Burton; Councillors—Mr. J. T. Jeffrey, Dr. Graham, Mr. Wm. Austin, Dr. Inglis Clark, Mr. William Brunton, and Mr. George Anderson.

Obituary.

A. M. Burnie.—For over thirty years Mr. Burnie was a partner, latterly a director, of Messrs. Dobbie & Co., Ltd., Edinburgh and Marks Tey. He was born in Rothesay sixty-four years ago, and after leaving school entered his father's profession, that of banking. He was accountant of the Clydesdale Bank, Rothesay, when Mr. W. Cuthbertson induced him to give up banking and join the firm of Dobbie & Co. to take charge of the counting house side of the business and leave Mr. Fife and himself free to develop the practical side. The partnership then formed ran unbroken for over thirty years and no little share of the success the firm has achieved lies to Mr. Birnie's credit. A man of sound judgment and great experience it was always regretted by those who knew him that he never could be persuaded to attend trade gatherings and give of his knowledge there. Only once did he attend the annual meeting of the Horticultural Trades' Association in London, and only once was seen at a Chelsea Show. His interests after business hours lay in other directions. He was an effective and ready speaker and devoted nearly all his spare time to religious, temperance and social work, in no narrow sense, being welcomed on every platform. He died on Thursday the 17th inst., after a very brief illness and was buried at Rothesay on January 21. He was unmarried and is survived by a sister, the last of his family.

T. H. Burroughes.—By the death of Mr. T. H. Burroughes, which occurred at Hoveton House, Norfolk, on the 17th instant, horticulture loses one of its oldest and most able devotees. Mr. Burroughes, who had exceeded the allotted span of life by a score of years, began gardening half a century ago at Ketton Cottage, a few miles west of Stamford, and was one of the pioneers who took an active part in the revival of horticulture so ably championed by Mr. William Robinson, still happily with us. Of eclectic tastes, Mr. Burroughes had an unerring eye for a good plant, shrub or tree. He used his brain as well as his hands, and was above all a keen cultivator. The more difficult a plant, the greater the zest with which he pursued the cultivation of it, and as often happens, the natural difficulties of cultivation were materially increased in his case by the soil and situation of his garden, the one a frigid oolitic limestone, and the other, as he used to say, possibly the coldest in England, and periodically subject to flooding from the brook which passes through it. In the cultivation of alpine plants, Mr. Burroughes long since realised the importance, in our damp winter climate, of a porous soil, and that brought him, as it must bring every serious cultivator sooner or later, to the need for subterranean irrigation in summer, and to many ingenious applications of the principle. More than twenty years ago Mr. Burroughes set out to grow Eritrichium, and succeeded, and in the nineties the less tractable Narcissi of the Triandrus group and N. Bulbocodium were flourishing amazingly under his hand. The Primula genus and Gentians had but few secrets for him, but possibly, after Tecophilea, which has been perennial at Ketton for about twenty years, Mr. Burroughes's greatest cultural triumph was with the difficult Omphalodes Luciliae, which grew to such purpose in his garden that he eventually came to use it as a path edging. He cultivated Lilium monadelphum and Ostrowskya magnifica as field plants, and was one of the few amateurs to manage Rosa Ecae.

Edwin Burge.—We regret to learn of the death of Mr. Edwin Burge, who passed away on December 29, 1923, at the residence of his daughter at Epsom. The late Mr. Burge was well-known amongst the gardeners in the Kennington district in 1876, when he had charge of the gardens at Thornwood Lodge, Mr. McIlroy, then Secretary of the United Horticultural Benefit and Provident Society, was his neighbour; both were keen gardeners filled with a desire to help their fellow-craftsmen in times of need, and they were among the pioneers of the United Horticultural Benefit and Provident Society. In 1886 Mr. Burge moved to Beckenham where he took charge of Oakwood Gardens, and in 1887 he became a member of the U. H. B. P. Committee on which he served for twenty-eight years. On the death of his employer in 1914 Mr. Burge retired to enjoy a well earned rest, but not until 1915 did he retire from the management of the U. H. B. P. His valuable services were much appreciated, and nothing but illness prevented him from attending the meetings. By his death the Society loses one of its keenest workers. The interment took place at Epsom on January 2, 1924.

M. Paul Labbe.—We regret to learn of the death, which took place on December 13, of M. Paul Labbé, the well-known Chrysanthemum grower of Thiberville, Eure, France, and the President of the French Chrysanthemum Society. Some months previously he had had a sudden heart attack while delivering a speech at a local fête, and this prevented him from attending the Congress at Limoges. The deceased occupied a high position in French horticultural circles, and regularly showed excellent specimens of the Chrysanthemums grown by his firm.

TRADE NOTES.

The Royal Horticultural Society has granted an Award of Merit to Messrs. Robinson Bros., Limited, of West Bromwich, in respect of their Destromite powder, used for the destruction of aphides and caterpillars. The powder is identical with the material supplied with satisfactory results to Hop growers and fruit growers during the past season.

The Board of Agriculture for Scotland intends to erect, at a cost of £6,000, a seed testing station on its farms at East Craigs. The main building will contain a purity laboratory and a germination laboratory capable of seating twenty workers. A glass house is to be attached for germination tests in the soil. Opposite the main building will be a two-storey structure, the lower floor consisting of offices and staff rooms, while the upper floor is to contain the botanical laboratory for work connected with the registration station and plant diseases. At present the staff is working in temporary premises in Duke Street and Albion Street, Edinburgh, where some 10,000 samples are dealt with annually.

The Minister of Agriculture and Fisheries gives notice that, for the purpose of the redemption of tithe rent-charge for which application is made after the 31st December, 1923, until further notice, the "gross annual value" for the purposes of the Tithe Act, 1918, will continue to be at the rate of £104 for each £100 of tithe rent-charge (commuted value), and the compensation for redemption will continue to be twenty-two times the "gross annual value" after the deductions therefrom prescribed by the said Act have been made. The above figures have been settled on the recommendation of a Departmental Committee consisting of Sir Charles Longmore, K.C.B. (Chairman), Sir Henry Rew, K.C.B., and Mr. W. R. Le Fanu, with Mr. P. W. Millard of the Ministry as Secretary.

We are informed by the Ministry of Agriculture and Fisheries that in the case of importations of seeds and live parts of plants into Brazil by means of the parcels post, the Brazilian authorities have decided to dispense with the requirement of certificates of health. It is understood that such consignments will, however, be subject to inspection on arrival in Brazil.

ANSWERS TO CORRESPONDENTS.

Big Bud on Black Currants: *R. T.* The shoots sent are affected with big bud caused by the mite Eriophyes ribis. The variety Seabrook's Black is not entirely immune from attack but it is less susceptible than Boskoop Giant. Edina is another variety showing highly resistant qualities. There is no known cure, although good results may be obtained by spraying with lime-sulphur, using the 1.3 specific gravity mixture at the rate of one gallon to twelve gallons of water, when the leaves attain a length of about half an inch. The bushes should be examined now and all swollen buds removed and burned.

Books: *R. B.* You will find the following books very useful: *Cucumber Culture*, by W. Dyke, price 1/2 post free, and *The Book of the Peach*, by H. W. Ward, price 4/- post free, and may be obtained from our Publishing Dept., 5, Tavistock Street, Covent Garden, W.C.2. We do not know of any books dealing exclusively with the outdoor cultivation of Figs or of Melons.

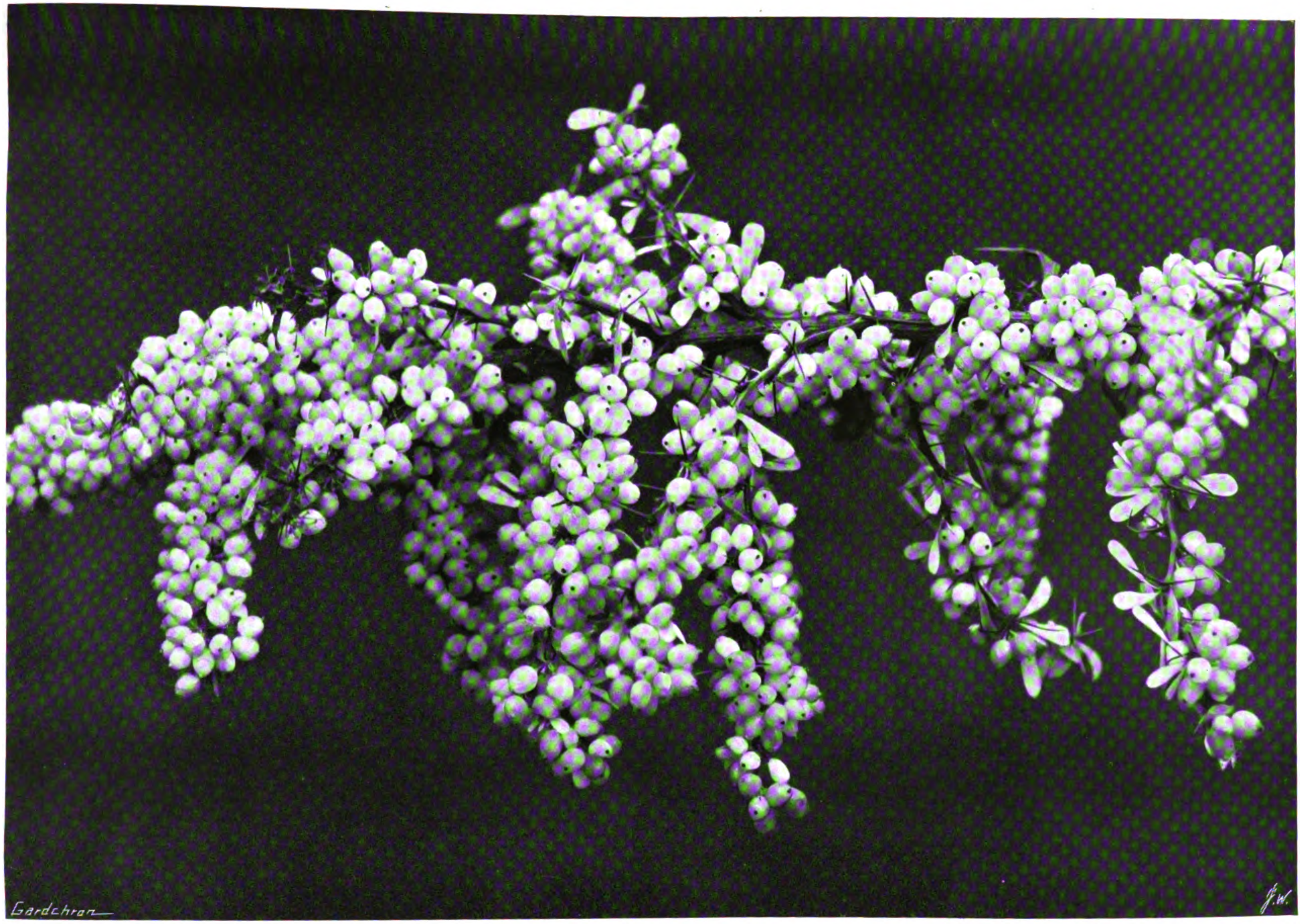
Hedge-Land Ownership: *F. P.* The owner of the hedge cannot claim any land on the neighbour's side unless there is a ditch on that side at the foot of the hedge. If there is such a ditch, the prima-facie assumption would be that the ditch belongs to the owner of the hedge. Every case, however, must ultimately be decided on the actual facts which apply, and it is possible that the title-deeds to the land may show clearly to whom the ditch belongs.

Names of Fruits: *W. H.* Old Golden Pippin. —*G. S. S.* 1, Barnack Beauty; 2, Fearn's Pippin; 3, Belle de Boskoop; 4, Dutch Mignon; 5, Cockle's Pippin; 6, Mabbott's Pearmain. —*G. R.* 1 and 3, King of Tompkin's County; 2, Dumelow's Seedling (syn. Wellington).

Name of Plant: *M. C.* Pernettya mucronata.

Poultry Manure for Mushroom Bed: *G. C.* Poultry manure is not to be recommended for the making of Mushroom beds, long stable manure being the best for this purpose, as the Mushroom depends mainly for its growth upon the heat generated by decomposition of the manure. Poultry manure is, however, highly valuable and may be used with advantage for quick growing vegetables out of doors. Owing to its concentrated nature it should be used sparingly and a dressing of not more than five to ten pounds per square rod will be sufficient. It also makes a very good liquid manure when used at the rate of about one peck in eighty gallons of water. The liquid should not be allowed to come into contact with the foliage of plants to which it is applied.

Peach Trees: *R. B.* The method of growing Peach trees trained across lean-to houses instead of in the usual way on a trellis at a uniform distance below the glass, is not a new one. The only claim advanced in favour of it is based principally on the theory that fruits are obtained from a larger surface. As the method has been known for a long time and tried by many, and seeing that it has only been adopted on a very limited scale, we may reasonably conclude that it has failed to meet the views of practical growers. We have seen fair crops of moderate-sized fruits grown in this way, but certainly better crops and finer fruits may be grown with greater ease and certainty by the ordinary method. Trees planted across the house, where further extension is out of the question, should be frequently lifted or root-pruned to keep them in full bearing, thereby restricting the annual growth of the tree without seriously diminishing its fruit-bearing capacity. Where fruit of first quality is required, there is no doubt as to whether the restriction or the extension system is preferable.


Gardchron
J.W.

A FRUITING BRANCH OF BERBERIS COMET.

THE Gardeners' Chronicle

No. 1936,—SATURDAY, FEBRUARY 2, 1924.

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SUPPLEMENTARY ILLUSTRATION.

Berberis Comet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.4°.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 30, 10 a.m.: Bar, 30 2: temp. 46° Weather—Foggy.

The Nutrition of Plants.

THE broad facts relating to the nutrition of plants are well known; but, nevertheless, many of the processes which intervene between the taking in of simple inorganic substances—water, carbon-dioxide and mineral salts, and the fabrication of organic food materials (sugars and proteins)—still await elucidation. One of the most recent attempts to fill these gaps in knowledge is that made by Mr. J. F. Breazeale* who, after performing a number of interesting experiments designed to throw light on the rate at which mineral substances are absorbed by plants, brings forward a somewhat novel hypothesis to account for the facts which he has observed. Whatever views may be held as to the theoretical part of this contribution to knowledge, it cannot be gainsaid that the observed facts are of the greatest interest. The method employed by Mr. Breazeale in his experiments consists in analysing relays of plants. Wheat and others grown for known times in culture solutions of known composition. He finds that during the first five days after germination there is an actual decrease in the amounts of nitrogen, potash, and phosphates contained in the young plant as compared with that in the ungerminated seed. It is assumed, therefore, that at the beginning of growth of the seed some of its contents pass out into the soil. The decrease is more marked in the case of potash and phosphates than it is in the case of nitrogen. The apparent loss of potash and phosphate appears to amount to something like seven per cent. Why such a loss should occur, and whether it is of the nature of putting a little water down a well in order to draw up a lot, or whether—if the loss actually occurs—it is an inevitable leakage, may not at present be conjectured. This brief phase of the seedling's life is followed by one during which mineral salts are absorbed with great and increasing avidity. The young seedling seems to have in particular a great craving for potash, and from the fifth to about the eighteenth day of its life the rate at which it absorbs potash increases rapidly. When, however, the seedling is eighteen days old, this craving would appear to have become in a measure satisfied and the more steady-going absorption of nitrogen compounds which, meanwhile, had been increasing at a regular rate, passes that of potash. Having established the rates of absorption of the chief mineral nutrients by seedlings grown in solutions containing a sufficiency of each of them, the author proceeds to ascertain the effect on absorption which is produced when seedlings are fed intermittently; that is, allowed to dip their roots into the nutrient solution for a limited time each day. As might have been expected, the longer the roots remain in contact with mineral supplies the more of these substances are absorbed. But comparison of the amounts of nitrogen, potash, and phosphates absorbed, show that when a plant is allowed to take up one or other of these substances for the whole twenty-four hours the quantity absorbed by the plant is by no means twenty-four times as much as that absorbed when only one hour is allowed for the task. Evidently, in the case of the plant, the appetite does not grow by what it feeds upon; but on the contrary, there would appear to arise in the plant a sort of satiety, so that when supplies are continuous and plentiful, it presently ceases to take them up with any avidity. More surprising than this fact is another; namely, that plants allowed to feed only on alternative days—fast days being observed by the roots laying in pure water—actually took up more nutrients, more nitrogen-compounds, more potash, and more phosphates, than did those which were never made to fast, but retained access to the nutrient medium all the time. For our part we are inclined to be sceptical of the soundness of the conclusion drawn from these experiments. Every one who has made water-cultures knows that plants kept continuously in a culture solution are apt to become unhealthy, and it is a common practice in such experiments to transfer the roots at intervals from the culture solution to pure water. From a practical point of view, the most interesting pronouncement which the author makes is that he is able to go into a field and, by pulling up a plant and putting it for a few days in a nutritive solution, to discover, by ascertaining the rate at which it absorbs mineral nutrients, the particular plant food for which it may happen to be "hungry." No less remarkable than the foregoing results, are those which Mr. Breazeale claims to have obtained by causing the roots of plants to compete with one another for nutrients. Seedling Corn (Zea Mays) and Kafir (a plant name unfamiliar to us) with roots in the same solution behaved for all the world like sparrows and tits to which grain is thrown. The Maize took the lot. According to the results of analysis, when but little nitrogen was added practically all was absorbed by the Corn; when more, the Corn still continued to get the lion's share, absorbing thirteen times as much as the other plant. The figures of analysis are, however, unconvincing, appearing to show rather that whereas Zea Mays is a plant greedy of nitrogen, the other plant is naturally economical in its uptake of nitrogen salts. For even when so much nitrogen was added that the Corn could only absorb one-third of the total amount, the Kafir, which had plenty to draw upon, still only took up one-sixth of the amount absorbed by the Corn, leaving untouched a large residual amount. However this may be, students of plant-nutrition will welcome the excursion of Mr. Breazeale into the fields which they cultivate. They may, perhaps, require more evidence before they are converted to his views, and doubtless that evidence will be forthcoming in due time.

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* Nutrition of Plants considered as an Electrical Phenomenon. *Journal of Agricultural Research*. xxiv.

Ministry of Agriculture and Fisheries.—We are informed that the Minister of Agriculture and Fisheries, Mr. Noel Buxton, M.P., has appointed Mr. C. T. Houghton, Mr. R. H. Franklin and Mr. T. P. Conwil Evans to be his Private Secretaries. The Parliamentary Secretary of the Ministry, Mr. W. R. Smith, has appointed Mr. D. B. Toye to be his Private Secretary.

Legacies to Seedsmen and Gardeners.—The late Mr. Francis Clark, seedsman of Carlisle, who died on November 30th last, leaving a fortune of £97,015, left one-hundred preference shares in Clark Bros. each to Mr. Archibald Greighton and Mr. A. Hall, seedsmen, both of Scott's Street, Carlisle.—The late Lt.-Col. W. J. Mackintosh, of Ashfield, Honiton, Devon, bequeathed the sum of £200 to his gardener, Mr. A. Warren, on his wife's death.—The late Commander Henderson, R.N., of Red House, Tenby, Pembroke, who died on December 18 last, left £300 and £5 for each year since 1918 to his gardener, Mr. John Beynon, and he requests his son to see that Mr. Beynon does not want in his old age.

The Journal of Pomology.—The quarterly issue of *The Journal of Pomology and Horticultural Science*, vol. iii. No. 4, contains a number of papers of considerable interest to fruit growers. Mr. N. H. Grubb, who has been studying the effects of fungicides on Apple trees since 1919, contributes a paper on this important subject, and finds that Bordeaux mixture controls Apple Scab (Venturia inaequalis) almost as effectively as lime sulphur and ammonium polysulphide. In the case of the Apple Mildew (Podosphaera leucotricha) lime sulphur was more effective than Bordeaux mixture, and the latter fungicide was found to cause considerable russetting of the fruits of James Greive, Newton Wonder, and Lord Derby. On the other hand lime sulphur when used as a summer fungicide was responsible for heavy fruit dropping from trees of all the varieties tested. In a paper entitled "Egg-killing Washes," Mr. A. H. Lees, M.A., the author, finds that lime-sulphur at all strengths was ineffective for destroying the eggs of the permanent Apple Aphis (Aphis pomi), but when a ·2% calcium caseinate was added, the lime sulphur possessed strong killing properties, whether applied in February or March. Other sulphur combinations did not prove effective. Combinations of caustic soda and nicotine possessed strong killing properties when applied just before the hatching of the eggs, but were useless at an earlier date, whereas certain of the coal-tar products showed no useful action, and some had a harmful effect upon the trees. "Notes on the Pollination of Cherries," a paper by Mr.

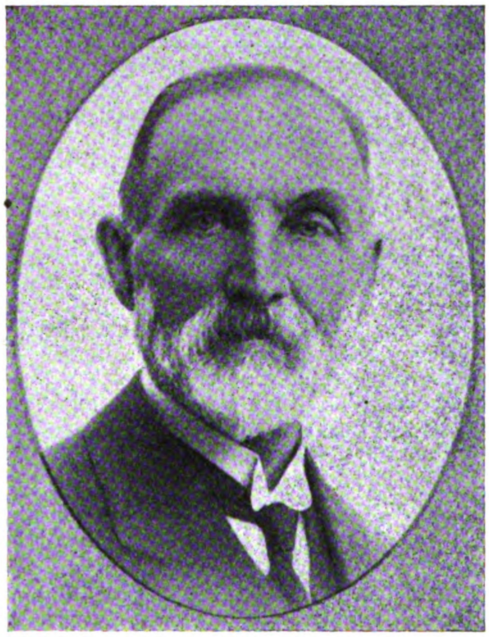
C. H. Hooper, gives the varieties of Cherries in the approximate order of their flowering, and the author adds much information concerning the varieties to plant together in the orchard. Mr. A. M. Massee, F.E.S., is responsible for a paper on "The Resistance of Apple Stocks to attacks of the Green Apple Aphis," and out of eight types of Paradise stocks, one stock (Type xi., Jaune de Metz) showed high resistant properties, and one individual plant of this type was wholly immune to attack. There appears to be no inter-relationship of root stock and scion in respect to resistance to Aphis pomi, for when a resistant stock was worked with a susceptible scion, viz., Bramley's Seedling, this variety became as highly infested as when worked on a susceptible stock.

Scentless Musk.—Mr. R. W. Ascroft, Assistant Secretary of the Royal Horticultural Society, has recently contributed to *The Morning Post* a very interesting letter on "Loss of Perfume in Musk." It is well known that Mimulus moschatus has lost its odour in this country, and the fragrance appears to have vanished from plants in New Zealand, and in the Sierra Nevada Mountains where Musk is very common. Many theories, as to the loss of perfume in this plant, are put forward. Some believe the cause to be due to growing the Musk in excessively rich soil, while others are of the opinion that the scent is due to the presence of hairs, and that the perfume is produced in the hairs. This view is not held by Dr. Eugene Charabot, who maintains that the odour comes from an essential oil in the leaves, and that the disappearance of fragrance is common in plants transplanted from great distances, as naturally they undergo, in the course of time, profound modifications in the chemistry of the plant juices. Another theory is that the real purpose of the perfume was to prevent the attacks of a leaf-cutting insect which is common in North America, where M. moschatus is native, and that the absence of the insect in this country may account for the loss in fragrance, as the plant would no longer require it for defensive measures.

Bequests to Gardening Charities.—The late Mr. James Harris, nurseryman, Blackpill, Swansea, whose decease was recorded in the *Gard. Chron.*, November 10, 1923, p. 286, left £150 to the Gardeners' Royal Benevolent Institution and £100 to the Royal Gardeners' Orphan Fund. The estate of the late Mr. Harris was of the gross value of £17,222.

Retail Prices of Agricultural and Horticultural Produce.—In reply to a question in the House of Commons, The Minister af Agriculture stated that the reports of the Departmental Committee on the Distribution and Prices of Agricultural Produce in respect to milk and milk products, fruit and vegetables, and poultry and eggs have been considered by the Board of Trade and the Horticultural and Poultry and Advisory Councils of the Ministry of Agriculture, in consultation with representatives of the various industries. A number of their recommendations have been generally accepted in principle, and the Ministry announces that steps are being taken to give effect to them "as far as possible," while a further selection of the recommendations are noted as being "under consideration." Recommendations that receive more positive support are largely connected with education and research, and deal with such questions as the extension of co-operative dairy schools, the preparation, packing, grading, and marketing of home dairy produce, and the preservation and canning of fruit. The suggestions of the Committee as regards railway rates and charges have been brought to the notice of the railway companies, but there seems to be little expectation of any further reduction in the rates for parcel post. The recommendations in favour of advances to agricultural societies will, it is hoped, be carried out—if the necessary monies are voted by Parliament.

Mr. Robert Fife.—For a long number of years Mr. Robert Fife has been a loyal supporter of the Royal Caledonian Horticultural Society, and we are pleased to announce that he has been appointed President of this very active society for the year 1924. Mr. Fife is a native of North Ayrshire and gained prominence, in his early years, as a successful amateur competitor at the chief horticultural shows in Scotland. In 1886 he became a partner in the well-known firm of Messrs. Dobbie and Co., and he has seen his firm rise from a small beginning until it has become one of the leading horticultural businesses in the country. From 1894 to 1900 Mr. Fife devoted his time to his firm's seed farm in Kent, and was instrumental in bringing forward many of Messrs. Dobbie's noted strains of flowers and vegetables. Whilst in the South of England he took a keen interest in the work of many horticultural societies and served on the Fruit Committee of the Royal Horticultural Society for a period of five years, afterwards joining the Floral Committee of that society for a short time. The Dahlia and Chrysanthemum are two important florists' flowers which Mr. Fife has done much to popularise, and he has been associated with the work of the National Chrysanthemum and National Dahlia Societies for a long period. On his return to Scotland Mr. Fife took charge of Messrs. Dobbie and Co's. plant department. Although a very busy man he is an outstanding and honoured personality in local public life, where, as in business, he has won many friends.



MR. ROBERT FIFE.

Ken Wood Estate.—Efforts are being made to acquire a further area of the Ken Wood Estate for public use. The land already acquired is of some hundred acres in extent, and the further area which it is hoped to acquire slightly exceeds thirty acres and includes a magnificent tract of forest which is the distinguishing feature of the prospect from Parliament Hill Fields. The timber includes some splendid Beech trees, groups of Elms and Scotch Firs, and a large number of healthy Oaks. The undergrowth includes many Rhododendrons and other flowering shrubs, and from the southern slope of the woodland openings provide some of the most beautiful views over London obtainable from any part of the Northern Heights. In addition to the woodland, it is proposed to acquire the large water Lily pond and the smaller rectangular pond which ends in the famous bridge erected by Robert Adam. The total sum needed is £31,000, and the local authorities, including the Hampstead Borough Council, Islington and St. Pancras Borough Councils, the Hornsey Town Council and the Finchley Urban District Council have been approached for assistance.

Horticultural Club.—Following a dinner of the Horticultural Club to be held at the Trocadero Restaurant, Piccadilly W., on Tuesday, February 12, Dr. A. D. Imms, M.A., Chief Entomologist of the Rothamsted Experimental Station, Harpenden, will deliver a lecture, illustrated by lantern slides, on "The Life Histories of some Common Insect Pests." The Hon. Secretary, Mr. G. F. Tinley, 855, London Road, Westcliff, Essex, will be pleased to furnish further particulars of the meeting.

Alpine House of Kew.—The Alpine House at Kew has recently been opened to visitors and although early in the season it contains a number of interesting plants in flower. Iris histrioides major is represented by a fine pan of clear, deep blue flowers, while the paler coloured I. Vartanii makes a pleasing subject, producing its flowers much earlier than the foregoing and may be obtained in bloom by Christmas. Of Crocuses there are C. Sieberi, a native of Greece and Crete, with pale lilac flowers; C. biflorus, the Scotch Crocus, with purplish-tinged segments, and C. Fleischeri, a white flower with three slender lilac lines on the back of the segments. Other bulbous plants include Bulbocodium vernum, the rosy purple flowers resting on the surface of the soil before the leaves appear; Galanthus Elwesii, a very favourite species with large flowers splashed with green on the inner segments; Eranthis cilicica with bright yellow flowers and E. Tubergenii, a comparatively new plant with larger flowers than the former and of a deeper colour.

Weather in Southport—The mean temperature for the year 1923 in Southport was practically normal, exceeding the fifty years' average by not quite a quarter of a degree. The hourly mean temperature of the air was 48.2°, the highest reading of the thermometer being 86° and the lowest 26°. There were 1430 hours of bright sunshine in the year, the number of sunless days being sixty-one. Eight months of the year yielded excesses of rainfall, the year's total precipitation amounting to 38.88 inches, or six inches above the local average for fifty years. The number of days on which rain fell was two hundred and thirty.

South African Plants at the British Empire Exhibition.—Lovers of rare, beautiful and curious South African plants will be pleased to learn that a South African garden is to be one of the features of the British Empire exhibition. Early in the present month a collection of over two thousand plants weighing several tons will be dispatched from Cape Town to be planted at Wembley, and it will include several plants only recently discovered. The collection and dispatch of these plants has been made possible by Sir William Hoy, General Manager of the South African Government Railways, who is enthusiastically interested in the South African flora. Hitherto the collection and distribution of South Africa's floral treasures have been largely dependent upon the visits of botanists and plant collectors, with the help of a few resident enthusiasts. The vastness of her acreage and the sparseness of her population has made any systematic attempt to complete the work impossible. True, South Africa has now its national botanic garden at Kirstenbosch, near Cape Town, but this is of recent date and its work is restricted by lack of funds. Sir William Hoy controls an extensive network of railways and has a horticultural department. He has also established a native plant garden near Matjesfontein, and has communicated his enthusiasm to the station masters, employees and passengers so that all over the country a diligent search is being made for rare plants to add to the collection. Moreover, even in the most lonely and inaccessible parts of the country every railway station is rendered beautiful and interesting by the careful planting of native plants.

Le Chateau de Neuilly.—We notice in the current issue of *Jardinage* the first instalment by the Baron Hennet de Goutel of an interesting article on the Chateau de Neuilly, once a royal *domaine* of the House of Bourbon. Two excellent illustrations accompany the article. English rosarians will remember that it was while M. Jacques occupied the post of Head Gardener at this establishment, then in the occupation of the Duke of Orleans, about a century ago, more or less, he raised some excellent seedling Roses. Of these, perhaps Félicité et Perpétue, the orthography of which has been a fertile source of discussion, is one of the best known in this country.

M. Viger.—Subscribers to the fund recently raised to celebrate M. Viger's eightieth birthday, his quarter of a century's Presidency of the National Horticultural Society of France, and his promotion to the rank of Commander of the Legion of Honour will be pleased to receive, as we have just done, the charming little booklet containing a full account of the proceedings when the presentation of a substantial souvenir was made to the eminent head of French horticulture. The booklet consists of fifteen pages, and for its frontispiece has an excellent portrait of M. Viger. This is followed by a list of the Committee which undertook the organisation of the fund and meeting. Then follows the text of the various speeches made by those who took part in the presentation. Over six hundred persons at home and abroad contributed to the fund. It would have been interesting if, as was the case when M. A. Truffaut, senr., retired from the Premier Vice-Presidency, a list of the subscribers had been included in the booklet.

Appointments for the Ensuing Week.—Sunday, February 3: Wakefield and Northern Tulip Society's meeting. Monday, February 4: National Chrysanthemum Society's Annual Meeting at R.H.S. Hall. Tuesday, February 5: Croydon and District Horticultural Society's meeting; Royal Caledonian Horticultural Society's meeting. Wednesday, February 6: Morley and District Paxton Society's meeting; Royal Agricultural Society's Council meeting; Royal Scottish Arboricultural Society's Annual Meeting. Thursday, February 7: Newcastle and District Horticultural Society's lecture; Nottingham and Notts. Chrysanthemum Society's meeting. Friday, February 8: National Chrysanthemum Society's Floral Committee dinner.

"Gardeners' Chronicle" Seventy-Five Years Ago.—*Disease in Portugal Laurels.*—In the year 1841, I planted shrubberies of considerable extent round my house, having prepared the ground by trenching it eighteen inches deep. The soil is such as is generally considered favourable for evergreens, rather light, but of good quality. The shrubs, and especially the Portugal Laurels, have done exceedingly well, and these now form bushes of seven or eight feet high, and, in general, of very healthy appearance. Three years ago, however, I observed one of these bushes put on a silvery look about the leaves, which gradually increased, till, at the end of two years, the bush died. On examining the roots nothing was seen to account for this. About a year ago I observed another large Portugal Laurel, in quite a different part of the shrubbery assume the same appearance; this, as in the former case, has gone on increasing, and I have just transplanted it to see if that will save it; but what alarms me is that I now observe the same thing in several others of these shrubs, and I am afraid of losing the whole and having the place laid bare. I enclose some of the leaves, and shall be obliged if you will advise me what to do. Nothing except the Portugal Laurels seem affected, but they form the principal part of my shrubbery. *W. S. K., Kelso.* [This disease is well known; the cause of it is entirely unknown]. *Gard. Chron., February* 3, 1849.

TREES AND SHRUBS.

BERBERIS COMET.

THE subject of the supplementary illustration accompanying the present issue attracted a great deal of attention at the Royal Horticultural Hall, Westminster, on October 30, 1923, when fruiting branches were exhibited by the Royal Horticultural Society, from its gardens at Wisley, Surrey. Probably no Barberry fruits more freely than this seedling. The bright, coral-coloured berries were so plentifully produced on the branches exhibited that in the opinion of several connoisseurs they were overcrowded. Very rarely is this complaint laid against berry-bearing shrubs of an ornamental character, and it may be that the exceptional vigour of the seedling plant will be reduced somewhat by vegetative propagation. There is no doubt, however, that B. Comet will take its place in gardens as one of the finest of the berry-bearing Barberries, by reason of its robust habit, graceful, branchen stems and its abundance of thickly-clustered fruits. For autumnal effect Berberis Comet will certainly be in great demand in the near future. Whether it has any serious defects from the cultivator's point of view does not yet appear; at Wisley it appears to have none.

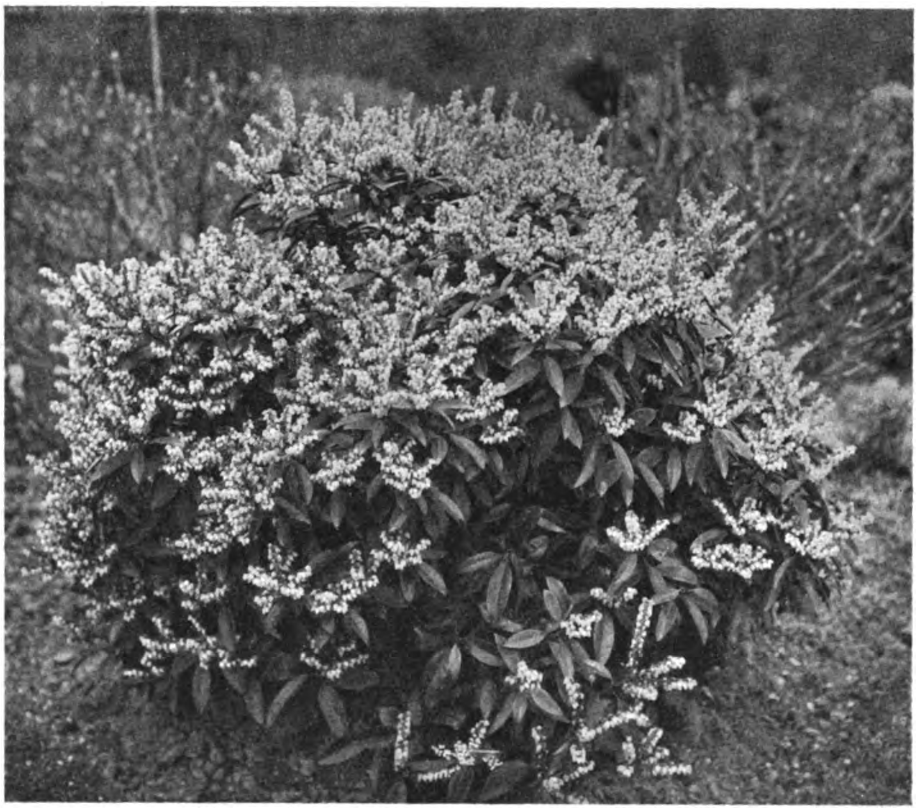


FIG. 23.—PIERIS (ANDROMEDA) FLORIBUNDA.

PEROWSKIA ATRIPLICIFOLIA.

THIS is a very uncommon shrub, having long, greenish, tomentose branches, and small ovate leaves which are delightfully scented. When established it bears long spikes of lavender and blue flowers in great profusion in autumn, and forms an effective bush from three feet to five feet tall. It is most effective in shrubbery borders. *W. Logan.*

CAESALPINIA JAPONICA.

CAESALPINIA JAPONICA is a hardy shrub of moderate height. The stems and branches, of an attractive reddish-brown colour, are armed with numerous hard, curved spines, reminiscent of those of Gleditschia horrida.

The foliage is of soft and pleasing aspect and bears a strong resemblance to that of the Laburnum, the colour being pale green.

The flowers, twenty to thirty on a raceme, are produced in June and July; they are bright canary-yellow in colour and about one inch in diameter. The beauty of the flowers is greatly enhanced by the bright red filaments and anthers.

C. japonica is best trained against a south or west wall; the growth is somewhat straggling in character but is easily kept within bounds. In a deep, well-drained, sandy loam the plant makes free growth and produces an abundance of its large flower racemes. *Ralph E. Arnold.*

PIERIS FLORIBUNDA.

THE beauty and usefulness of this shrub renders it valuable for ornamental purposes in gardens. It is one of the most handsome members of the genus and is a charming subject for planting in masses in the wild garden, where, in conjunction with other shrubs, a good effect may be obtained. As a general rule it forms a neat shrub, attaining a height of from four to six feet, with ample dark, glossy foliage on the branches, which are terminated by erect panicles of white flowers produced in March and April. Pieris floribunda is a slow-growing subject and delights in conditions similar to those found suitable for Rhododendrons and other "American" shrubs. The illustration (Fig. 23) shows a specimen plant in the gardens of F. Copeman, Esq., Cliveden, Essex, where, in early spring, it is a feature of a select collection of shrubs.

CARYOPTERIS MASTACANTHUS.

THIS Caryopteris is one of the few blue-flowering, dwarf-growing Chinese shrubs that may be highly recommended for the herbaceous or shrubby border. The plant has a neat, compact, bushy growth and is well furnished with prettily serrated, downy foliage. It is very free blooming; the flowers are a light azure-blue, developed in axiliary globose heads and produced in succession over a considerable period. This Caryopteris is also a good shrub for the rockery. *L.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Dendrobium.—As a general rule Dendrobiums bloom during March and April, but the season of flowering may be extended by starting a few plants early. The selected plants should be removed from their resting quarters to a house having a slightly higher temperature. The flower buds of many of the plants of both species and hybrids are developing, and some of the more forward ones should be chosen. A careful selection is necessary, both in regard to variety and the condition of the plants. Only well rooted and thoroughly ripened specimens should be selected, and preference should be given to hybrids of D. nobile and D. aureum types. Having selected the plants they should be afforded sufficient water at the roots to keep the pseudo-bulbs plump, for if moisture is too liberally applied it will cause them to start rapidly into growth, and the flower buds will turn yellow and drop, or the plants will produce blooms of inferior quality. They should be first placed in a house where the temperature is a few degrees warmer than that in which they have rested, finally transferring them to the stove or warm division. Unless early flowers are specially desired, the forcing should be gradual, only sufficient warmth being used to cause the flower buds to develop steadily. By this treatment the blooms will be larger and of greater substance than when much fire-heat is employed.

Watering.—The general stock of Dendrobiums of both species and hybrids should be examined occasionally to ascertain if any of the plants are in need of more moisture at the roots. As the flower buds begin to swell at the nodes a rather more liberal supply of moisture may be applied, but moderation in this respect should be practised for the present.

Slugs.—Keep a sharp watch for slugs that frequently appear in numbers at this period, and, if not destroyed, cause great damage to the flower buds as soon as the latter begin to develop. Traps of damp bran or Lettuce leaves should be placed on the stages near the plants, and the slugs searched for at night time and early mornings.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Planting and Transplanting.—The opening days of February mark a time of increasing activity in all departments of the garden, and he who is inactive now will be a sorrowful loser later. The weather during January has not been very favourable for many outdoor operations, and where planting or replanting was not finished before the turn of the year the work should now be hastened with the utmost speed whenever favourable conditions occur. Although evergreens may be planted during the late spring months every effort should be made to get all deciduous trees and shrubs into position before the end of this month. When circumstances compel late planting it is advisable to mulch the plants heavily with short manure on completing the work. When the necessary additions or alterations to the shrubberies are finished the remainder should be lightly forked over, but care should be taken that this work is not done too deeply or many fibrous, feeding roots will be destroyed. Any further necessary transplantings in the herbaceous borders should also be carried out as opportunities occur, and those borders which it has not been necessary to replant should receive a good dressing of bone-meal and have the surface soil lightly cultivated.

Border Carnations which have been wintered in frames should be thoroughly cleaned. The lights may now be removed to prepare the plants for setting out of doors a little later.

East Lothian Stocks.—These plants need a long season of growth and the seeds should be sown without delay. An intermediate temperature is suitable for germination, but the plants should afterwards be grown on under quite cool conditions.

Antirrhinums.—Seed of Antirrhinum should now be sown. Sow thinly and germinate the seed in moderate warmth. Prick off the seedlings as soon as they are ready for handling, and grow them on under cool conditions, giving ample ventilation to promote sturdy growth.

Insect Pests. — Keep a sharp watch for vermin. Slugs are sometimes particularly destructive to young growths of Dianthus and other plants. They should be searched for on mild mornings, collected and dropped into a pail of salt. Mice and voles frequently cause much damage by burrowing under large clumps of established plants and also by eating various bulbs. Persistent efforts should be made to trap them or to poison them in their runs.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Fruit in Store.—In view of the small crop there has been plenty of room in the store to place Apples out singly, and they are keeping well. Nevertheless, they should be examined occasionally to remove bad ones. Admit a little air through the ventilators, closing them on cold nights and those on the north side in wet weather. The fruit room should not be too dry or the fruits will shrivel prematurely. If this is the case, damp the floor occasionally with a syringe to create a slightly humid atmosphere.

Black Currants.—These bushes may now be pruned whenever the ground is fit to walk on. Old bushes should have the wood well thinned where the shoots have become crowded. If any of the shoots are infested with bud mite, which may easily be determined by the swollen appearance of the buds, they should be removed and burnt; those that are retained should have infested buds removed by hand picking. Black Currants need a cool rooting-medium, and should not be planted in the hottest part of the fruit garden. When pruning is finished give the bushes a liberal top-dressing of old hot-bed manure and decayed leaves.

Strawberry Beds.—If not already done, Strawberry beds should be well mulched with decayed manure. The rains will wash the nutriment to the roots and help the plants to form fine crowns and strong flower spikes. It is well to make sure that young plants put in last autumn are firm in the ground, especially after the recent frosty weather. Tread well around each plant before applying the mulch, and they will then be quite safe.

PLANTS UNDER GLASS.

By F. J. Clark, Gardener to Lt.-Col. Sir George Holford, Westonbirt, Tetbury, Gloucestershire.

Chrysanthemums.—If a sufficient stock has not already been propagated, the necessary number of cuttings should be inserted forthwith. Plants that have been cut down and placed in a light position in a cool house will have made sturdy shoots. The old stools of any variety that may be shy in producing cuttings and any varieties from which an insufficient number has been secured, should be separated from the rest, and, after stirring the surface soil and top-dressing the plants with light, sandy soil, they should be placed in a moderately warm house in a position near the roof glass, where they may be lightly syringed once or twice daily. If the plants are intended for exhibition, a good plan is to insert the cuttings singly in thumb pots, though the usual practice is to place about four cuttings in a small 60-sized pot. The soil used should consist of equal parts loam and leaf-mould mixed with sharp sand, the whole rubbed through a half-inch sieve. The pots should be carefully crocked and filled firmly by thumb pressure, finishing with a sprinkling of sharp sand on the surface. Use a blunt dibber and see that the base of the cutting rests firmly on the soil. A good place to strike the cuttings is in a propagating frame in a cool greenhouse or vinery, as near to the roof glass as possible. A house from which frost is excluded will be sufficiently warm, for the cooler the growing conditions the better will be the result. The pots should receive a watering sufficient to well moisten the whole of the soil, before being placed in the propagating frame. If the frame is kept close (the glass on the inside being dried daily) very little water will be required until roots have formed. As a precaution, whether green fly is present or not, it is advisable to dip the cuttings in an insecticide before inserting them.

Taking Stock.—At this season the potting sheds, store-houses and material in the compost yard should be inspected and stock taken. No time should be lost in the procuring and stacking of loam to provide for the year's supply if this has not already been done. A good supply of fresh Oak and Beech leaves (Oak for preference) should have been stacked to provide a supply of leaf-mould. Stocks of loam, leaf-mould, peat and other potting materials should be placed under cover ready for immediate and future use. Notes should be taken of all materials in stock and a memorandum should be made of those which will be required for various purposes during the coming year.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Early Pot Peaches.—Peach trees growing in pots should never be allowed to suffer from lack of water at the roots; tepid water should always be used. When it is found that the fruits are swelling a liberal top dressing of rich compost should be afforded the trees. If by doing this the receptacle becomes filled to the rim, collars of tin, cut about six inches in width, should be placed carefully around the pot to prevent the new compost from being washed away when water is being applied to the roots. Close the house early and syringe the trees on all favourable occasions, but not in dull, sunless weather, when the amount of atmospheric moisture should be reduced to a minimum.

Muscat Vinery.—To have ripe Muscat of Alexandria Grapes in August the vinery should now be started. Presuming that the vines have been cleansed, all paint and glass work thoroughly washed, and the walls treated with hot limewash, the borders in which the vines are growing should receive the necessary attention. The surface soil should be removed with great care to prevent damaging the small fibrous roots. The amount of fresh soil needed will depend entirely on the quantity of old soil removed and should consist of a mixture of rich loam, coarse bone meal and broken charcoal. The border should be examined, and if found to be dry, soaked thoroughly with tepid water. Should the border be outside advantage should be taken of mild, open weather to attend to the replacement of soil, and when this has been done the surface should be covered with fermenting material consisting chiefly of leaves and stable manure. To ward off cold rains the border should be protected with sheets of galvanized iron or old boards.

The Early Peach House.—Trees that were started into growth during December should be vaporised with nicotine just when the first flowers are expanding as a preventive against attacks of green or black fly. Examine the borders carefully in which Peach trees are planted and if any doubt exists as to the borders being on the dry side they should be watered copiously. This watering should provide sufficient moisture until such time as the fruit is set. Pollinate the flowers by means of a rabbit's tail at noon, when the pollen is dry, and close the house early to conserve as much of the sun's warmth as possible.

THE KITCHEN GARDEN.

By WALTER Y. STAWARD, Gardener to Mrs. JOHN FEENEY, The Moat, Berkswell, Warwickshire.

Leeks.—Where Leeks are required for early exhibitions, the seed should be sown now in pans or boxes. When the seedlings are large enough to handle, they should be pricked off into three-inch pots, placing rough turf over the drainage material. The roots will penetrate into the turf and make the work of transplanting much easier.

Parsley.—A sowing of Parsley should be made. When large enough, prick the seedlings off into well-drained boxes; if plenty of three-inch pots are available these will be better than boxes. The seedlings will provide early plants for putting out of doors.

Mint.—Mint roots may be lifted and placed in well-drained boxes, using plenty of rough material for drainage. Place the boxes in a warm house in a position freely exposed to the light.

Spring Cabbage.—When the ground is in a suitable condition make a survey of the plants in the beds, and any that have been loosened in the soil by the action of the wind or frost, make firm by treading. Any plants that have failed should be made good from others in the seed-bed. If the ground is workable, hoe along the rows or use a cultivator to keep the surface open.

Mustard and Cress.—Where these salads are in demand, a sowing of both should be made every three days, either in boxes or on a border in an early fruit house. Make the first sowings in the earliest house and later ones in the late house, by which time the weather will be getting warm enough to sow out-of-doors every other day.

Early Seeds.—Make further sowings of Brussels Sprouts, Lettuce, Cauliflower and Early Cabbage. Grow the seedlings as near to the roof-glass as possible in a house having a moderate temperature. Water the seedlings with great care for a few weeks.

Potato Seed.—Potatos should be examined and bad ones removed. The tubers for planting early should be placed in boxes rose end up for sprouting. Place a few rough leaves in the bottom of the boxes but on no account hasten the tubers into growth.

Chicory.—More roots of Chicory may be lifted and placed in the forcing house for bleaching. Well grown Chicory makes a valuable addition to the salad bowl at this season.

General Remarks.—In frosty weather wheel manure on the ground and get everything ready to complete the work of digging when the weather is suitable. Up to the present the winter has been unfavourable for tillage operations and every opportunity should be taken to make up for lost time. In fine weather ground should be trenched or ridged, working in plenty of well decayed manure and leaving the surface rough for the frost to pulverise the soil.

ORCHID NOTES AND GLEANINGS.

HAEMARIA DAWSONIANA.

AT the R.H.S. Meeting on January 15, Mr. L. R. Russell exhibited a pan of this beautiful Asiatic Orchid, and rarely has it been seen in such perfection. The flowers, produced on stems from eight to ten inches in height, are pure white except for the splash of bright yellow on the column. The leaves are deep green, beautifully veined with deep red, and are particularly attractive.

Reference was made to this species in the *Gardeners' Chronicle* of 1868, p. 1038, where it is described under the name of Anoectochilus Dawsonianus. The species was introduced into this country by the late Mr. Stuart Low. The plant is also admirably figured in the *Bot. Mag.*, tab. 7486, where it is described as Haemaria Dawsoniana, being classed in this genus because the sac of the lip is concealed between the bases of the lateral sepals.

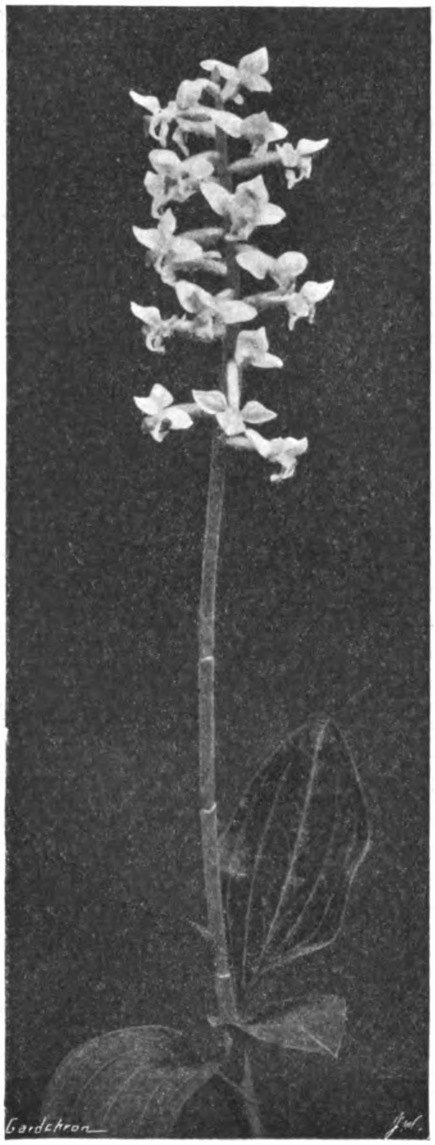


FIG 24.—HAEMARIA DAWSONIANA.

Under cultivation the plants will not withstand strong sunshine, and to gain success in their cultivation they should be grown in a house having a temperature not lower than 60°. Haemaria Dawsoniana does not root deeply, therefore the soil should consist of a mixture of Sphagnum, Oak leaves and peat fibre, placed over ample drainage in a pan. Moreover, the plants should be covered with a bell-glass, which, when the condensation is heavy, should be wiped clear with a sponge.—*R.*

ODONTIODA HARDYANA.

FRED HARDY, Esq., Tyntesfield, Ashton-on-Mersey (Gardener Mr. C. Branch), sends a superb flower of his Odontioda Hardyana, which was awarded a First-Class Diploma at the meeting of the Orchid Club of Manchester, on January 11. This remarkable hybrid could not fail to take the highest award at any Orchid meeting in Europe, the only difficulty for the members of the Committee being to find an award which would indicate its merits compared with varieties previously shown. It is one of the first flowers of a previously unflowered seedling, of which the record has been lost. Seeing the great dissimilarity in members of the class, it is difficult to suggest a probable parentage.

The flower, which would be considered very large compared with the best Odontoglossum crispum and of equally good shape, has bright red sepals and petals, with a shade of old gold and a narrow white margin broken by red markings. The lip is red with a slight chestnut-coloured tint, the wavy edge being white. The crest is highly developed and has yellow blades; the column is white with red on the reverse side. It is probably an extreme variation in a cross which may never again produce such a remarkable form. The plant when shown had eleven flowers.

NEW HYBRIDS FROM BROCKHURST.

FREDERICK J. HANBURY, Esq., sends from his interesting Orchid collection at East Grinstead the following new crosses:—

CATTLEYA CHARLOTTE NETHERWAY (Bertii × Trianae), a charming flower of the C. labiata class, but broader and rounder in all its segments. The sepals and petals are blush-rose tint, the finely expanded lip bright ruby-purple with a wavy, blush margin and light yellow disc divided by a purple band running to the base.

CYPRIPEDIUM MARY GUTHRIE WALLER (Zeno Brockhurst var. × Actaeus, Drewett's var.). This variety is among the largest of its class and of fine substance. The upper half of the broad dorsal sepal is pure white, and the lower part pale sap-green, with lines of heavy reddish-purple blotches. The petals are honey-yellow tinged and spotted with chocolate-purple, and the lip tinged with chocolate-purple.

ODONTIODA REDBREAST (Odm. Amethyst × Oda. Bradshawiae). A distinct flower of copper-red colour with cream-white tips and a slight margin. The base of the lip and crest are orange colour; the column is white, with a red tinge at the back.

Mr. Hanbury also sends a very fine example of his Cypripedium Primrose (Actaeus × Lotos), a clear yellow flower with a pure white upper half to the dorsal sepal; and a flower of a fine white Odontoglossum ardentissimum, said to have been imported as a natural hybrid.

ODONTIODA COLUMBIA.

THIS beautiful Odontioda, for which Messrs. Charlesworth obtained a First-class Certificate at the Royal Horticultural Society's meeting on January 15, was raised between Odontioda Alcantara (Oda. Cooksoniae × Odm. eximium) and Odontoglossum St. James (amabile × Amethyst).

This hybrid reveals a remarkable instance of the tenacity with which a pure species transmits its colour to the succeeding progeny. Oda. Cooksoniae (Cochlioda Noezliana × Odm. ardentissimum) was the primary cross, and after passing through a number of evolutions in succeeding crosses with Odontoglossum, the bright cinnabar-scarlet of Cochlioda Noezliana comes out in a self-coloured flower as in that species. The Odontoglossum Pescatorei in the Odontoglossum parentage gives perfect shape and appears but little changed in the new Odontioda, which however, takes its colour wholly from the Cochlioda.

O. Columbia was illustrated on p. 47, Fig. 18, and described on p. 41 of the *Gard. Chron.* for January 19.

A FLOWER-SPIKE DISEASE OF CULTIVATED ANTIRRHINUMS.

The following is a summary of a paper read at the recent meeting of the British Mycological Society, by Mr. W. J. Dowson :—

During the first week of June, 1922, in a trial of Antirrhinums under glass, at Wisley, when the opening of the flowers had well advanced, nearly all the spikes of a variety with white flowers were observed to have wilted in a mysterious manner. Examination of these plants showed that the greater proportion of the flowering axis from the lowest (oldest) flower upwards had been killed, was dry and almost white in colour. The flowers on this part of the axis were shrivelled and dead, while those at the apex, which was bent over and hanging down, were still living but never opened.

Closer inspection of every plant attacked showed that in each there was to be found one flower at the base of the inflorescence more shrivelled and withered than the rest, at which it seemed possible that infection had started. About the region where the diseased portion passed into the stem of the plant the epidermis was sunken and presented a darker green than the healthy tissue below, and could be easily separated from the cortex by gently rubbing with a finger. The stem died steadily downwards, and lateral branches became similarly affected; about a month after the disease was first noticed only a few laterals and a narrow strip of the main stem at the collar remained sound. In the majority of instances observed, the death of the tissues apparently ceased at this stage and only two plants out of about fifty were killed.

It may be noted here that the importance of the disease to the grower lies in the fact that the damage resulted in flowers unfit for cutting and in failure to produce seeds.

Whilst removing the diseased plants into a different house another variety, with pale yellow and pink flowers, was discovered to be affected in a similar manner. No other variety with white or pale coloured flowers was found attacked in the trial and no dark flowered plant was ever seen naturally infected.

Later in the season on all the isolated diseased plants, white, rounded masses of mycelium were formed, a little more than one-eighth of an inch in diameter, low down on the dead stems and generally just below the insertion of a branch. These bodies appeared to be bursting out of the epidermis and, after a few days, turned black on the outside, became hard, and proved to be the resting bodies—sclerotia—of the parasitic fungus Sclerotinia sclerotiorum, Mass. Also inside the killed stems similar sclerotia were found embedded in the pith.

From pieces of the diseased stems the fungus was easily isolated and grown as pure cultures on various media, on all of which rounded or elongated sclerotia, one-eighth to a quarter of an inch in length, were formed in the course of a week or two. Inoculation experiments on many healthy plants with the mycelium thus obtained in pure culture resulted in a similar infection of the stems into which the mycelium had been artificially introduced. In one instance the mycelium was placed upon the receptive stigma of a flower with the result that a condition was produced similar to that first observed among the trial plants.

It was not until the following season (May, 1923) that evidence was forthcoming that it was through the flowers that infection probably occurred in nature. Since September, 1922, the sclerotia had been kept in sand out of doors and in the early days of May, 1923, they started into growth. Small brown, cup-shaped bodies—apothecia—developed from the sclerotia and varied from one-eighth to a quarter of an inch in diameter.

Small clouds of spores were emitted from the apothecia for about three weeks and it was found possible, by means of a damp camel-hair brush, to transfer spores from the apothecia to receptive stigmas of Antirrhinum flowers which had been raised early for the purpose. In nearly every inoculation so performed, infection followed, and resulted in a condition of the inflorescence exactly similar to that first noticed. Thus a precise reproduction of the disease was brought about by placing the spores of the fungus on to the stigmas of the flowers and, so far as is known, this is the first record of such a mode of infection for Sclerotinia sclerotiorum.

It is not easy to understand in what other way the Antirrhinum flowers could have been infected, but the agent responsible for depositing the spores on the stigmas has not been definitely ascertained. At the time the disease made its appearance in the trial house it was observed that on sunny days the flowers were visited by bumble bees which came through the open ventilators in large numbers. Tiny mites were also found in most of the flowers, and it is probable that either one or both of these insects were dusted with spores discharged from apothecia in the vicinity. It is to be noted that Sclerotinia sclerotiorum produces only the one spore form—that arising from the cup-shaped apothecia—from which fact the grower of Antirrhinums may derive a certain amount of consolation, for attacked plants cannot act as centres of infection to their neighbours. Infection can only be brought about by spores in nature, and these are not produced until the following season. Further it was found at Wisley, during the course of the investigation, that if the diseased portions were completely cut off the plants developed their laterals on which were produced healthy flowers. Hence, so far as seed production is concerned the disease may not be so serious if the attacked plants are dealt with promptly before the laterals become involved. The removed portions should be burnt, not thrown on to the rubbish heap, for herein lies the means of spreading the disease. Diseased portions of stems and flower-spikes thrown away and not burnt will give rise to the black sclerotia, and these, in turn, will develop the cup-shaped apothecia with their countless spores. Apothecia developing in the vicinity of a bumble bees' nest are quite likely to discharge spores on to passing insects which may convey the spores to the flowers when visiting the latter for nectar.

The most important point to bear in mind in dealing with the disease is the prevention of sclerotial formation which may be most readily effected by burning.

TREATMENT OF MANURE HEAPS.

Two very important points are raised by *J. E.* (vol. lxxv., p. 40) concerning the frequent turning of manure heaps and the storage of manure under sheltered conditions. The practice indicated by your correspondent is, in each case, undoubtedly based on sound principles.

The method of decomposition of a manure heap is governed by temperature and moisture. Both these factors may be controlled by the degree of consolidation applied to the heap. A heap loosely compacted is likely to commence action rapidly and to decompose vigorously with development of a high temperature and consequent loss of moisture. Much nitrogen is likely to be lost in the process both through volatilization in the form of ammonia and also through the formation of extremely soluble nitrates, while at the same time, some of the straw will escape decomposition. It is obvious that these conditions will be accentuated where frequent turning of the heap is practised.

On the contrary, if the heap is uniformly moist and thoroughly consolidated at the outset, decomposition, though developing more slowly, will proceed steadily without any violent rise of temperature. The product will be uniform and of greater fertilising value.

When stacking coarse vegetable refuse it is frequently very difficult to get the necessary compactness in building up the heap, and in this case once turning when a partial breaking down of the tissue has taken place is advantageous, in that it enables the worker to consolidate the mass of material and promote that steady decomposition which is so desirable.

As regards storage under cover it is clear that excessive rainfall will wash out many valuable constituents from stable or farmyard manure. Too much moisture with access of air also promotes a more advanced stage of decomposition than is beneficial for ordinary purposes; therefore shelter should be provided. If no structure is available, thatched hurdles will serve the purpose and they should be applied as soon as the heap has been consolidated. *W. Auton.*

INDOOR PLANTS.

CALATHEAS.

The modern demand for cut flowers and flowering plants at all seasons of the year has contributed to the decline in the cultivation of stove plants, but where collections of these are grown the Calatheas are excellent ornamental plants for home decoration or exhibition. Their beauty is well known and their comparatively dwarf growth, neat habit and rich foliage make them great favourites.

An ordinary stove, the temperature of which ranges from 70° to 80° F. during the growing season, with an average of 10° lower during the remaining part of the year, will be suitable for their requirements.

Although the plants delight in an atmosphere highly charged with moisture, immoderately heavy syringing is detrimental to their health. Atmospheric humidity should be maintained by sprinkling the walls, floors and stages of the house frequently, and the syringing should take the form of a fine spray.

To keep the stock healthy all the plants should be repotted once a year at least, and from the present time to the middle of March, before growth becomes too active, is the best time for this to be done.

Large specimens should have the whole of the soil shaken out, the roots trimmed slightly and then replaced in pots of a similar size. Small and medium-sized plants that are to be grown into larger specimens should have as much of the old soil removed as possible and be potted on into larger receptacles as desired.

A suitable compost may be prepared by mixing fibrous loam, fibrous peat, and flaky leaf-mould in equal proportions, adding a good sprinkling of crushed charcoal to the mixture. Pot moderately firmly and give the roots very little water until they become active.

Propagation is readily effected by division, and where increased stock is required an old plant should be cut up into as many pieces as there are crowns. These should be placed into as small pots as practicable and plunged in a bottom heat of 80°.

There are large numbers of species in this genus most of which are worth growing. Amongst the most decorative are C. roseo-lineata, C Veitchii and C. zebrina. *A. P. C.*

AGAPANTHUS INAPERTUS.

Much smaller in every part than the better-known Agapanthus umbellatus, this plant is extremely pretty; the upright stems, freely produced and from two to three feet in height, are surmounted by loose umbels of pendent, tubular flowers of a clear, medium-blue in colour.

Never growing into large masses, as will A. umbellatus, A. inapertus is eminently suited to the cool greenhouse or conservatory, and wherever grown it proves a very distinctive feature. Seeds are freely produced and ripened, and may be used for increasing the stock, although division of the roots is the more common method employed. *R. E. A.*

HARDY FLOWER BORDER.

PHYTOLACCA.

PHYTOLACCA DECANDRA, a somewhat neglected hardy perennial, might, with advantage, be more generally employed for autumn effect in the herbaceous border or wild garden.

The Red-ink plant, as it is commonly known, is a strong-growing herb five feet high, and as much through. The racemes of many-stamened flowers are not particularly effective in the gay riot of high summer. The plant's value for creating effect in the garden is later in the season when the long sprays of glossy black fruits mature.

In the Scottish garden, where, probably the first consignment of seeds of P. clavigera (see p. 2) sent to Britain germinated, this species was, last autumn, a conspicuous and much noted plant. The foot long, upright spikes, fat and round, like a Bullrush inflorescence, were thickly studded with succulent black berries. *Fred W. Jeffery, Glasgow.*

THE PULMONARIAS.

I HAVE long since come to the conclusion that the Lungworts are a family which few can afford to despise, and the frequency with which they are so often regarded is frequently due to the fact that the majority of growers are acquainted only with the poorest forms. These latter are usually those which, having flowers of a dull, low-toned pink, fade-off into a distressfully purplish-blue. Their foliage is "sprinkled with divers white spots like drops of milke"—less elegantly described by Farrer as, "towzled and morbid-looking heaps of leprous leafage"—and it is to the Pulmonaria saccharata section that they belong. These are usually the earliest, and the largest and the best of them known to me is the variety Mrs. Moon.

P. angustifolia, a native species, is a choicer plant, with narrower, dull green leaves, very faintly spotted, and flowers of good clear blue. P. a. azurea has still finer flowers and there is yet another form, known as Mawson's Blue, which is easily the best. There may be other forms rivalling this variety, and we have one or two here which, though they appear to be nameless, very closely resemble it. Mawson's Blue—if my identification is not at fault—is, however, larger in the flower, a real indigo-blue, and its leaves are shorter and blunter than those of the others. Some authorities consider P. officinalis (Jerusalem Cowslip) to be a form of P. angustifolia, but it is inferior to the latter, the flowers being smaller and closely bunched. But the white form of P. officinalis is a pretty plant, perhaps the best of its colour, though P. a. alba, of some lists, possibly a white form of the blue P. arvernense, is considered superior by some. P. a. rubra is another good form, its flowers being of a good crimson colour, which do not turn slaty-blue with age.

All of these Pulmonarias, and there are others, have not only their very early-flowering to recommend them in addition to what beauty of blossom and foliage they may possess, but they are useful little plants for shady borders and the woodland. They enjoy a cool, generous loam, enriched if need be, with leaf-mould or old manure, and the clumps should be broken up and replanted about every third year. They are among the most easily satisfied of plants, but the finest whites and blues are unfortunately the slowest to increase by off-sets. *A. T. J.*

SALVIA GRAHAMII.

SALVIA GRAHAMII is, unfortunately, not perfectly hardy in the colder parts of the country, but in the more favoured districts it will succeed out-of-doors. The abundant light green foliage forms an effective contrast to the freely-produced flowers of bright red, almost scarlet colouring.

Most beautiful as a permanent feature, this Salvia may, in unfavourable districts, be utilised for the summer display and it will prove very effective; with the advent of cold weather, the plants should be potted and wintered in a cool house. *R. E. A.*

ALPINE GARDEN.

SOLDANELLA ALPINA.

THIS diminutive and very lovely alpine (Fig. 25) was introduced into this country from Switzerland so far back as 1656. The tufts of small, round, dark green leaves that have a shining, smooth surface are surmounted by wire-like stems from two to five inches in height, each bearing two or three of the small, pendant, bell-shaped, and delightfully fringed blue flowers.

This high alpine grows best in a moist, half-shaded nook in the rock garden, with a rooting medium of sandy peat and loam; it may be advisable to afford the plant the protection of a sheet of glass during the winter, for, as is the case with many of the high alpines, it is very impatient of damp and foggy weather.

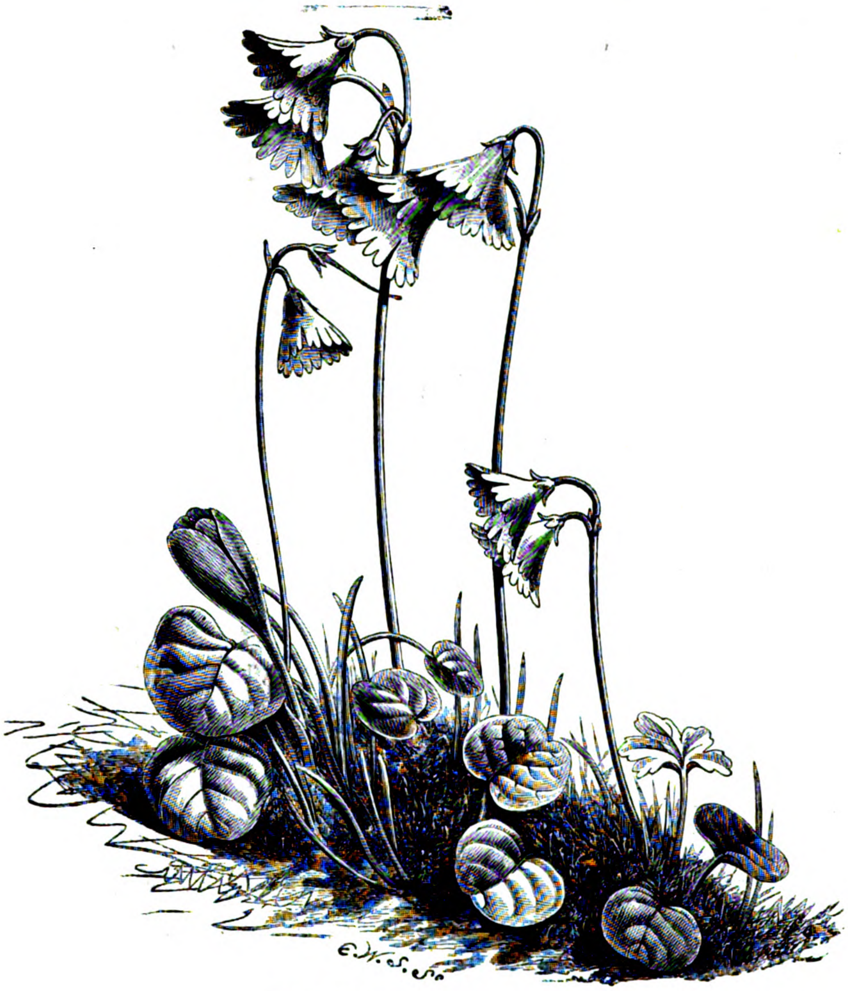


FIG. 25.—SOLDANELLA ALPINA.

The flowering season is March and April. Propagation may be effected by division immediately after the flowers are over, or by seeds, which are freely produced.

S. alpina, together with its congeners, S. montana, S. minima aad S. pusilla are delightful subjects for the alpine house.

ANDROSACE GERANIIFOLIA.

OF somewhat recent introduction, A. geraniifolia is not inaptly named; the round, greyish-green leaves bear a marked resemblance to those of some Geraniums and the whole plant is distinct from any other Androsace.

The plant propagates itself naturally by means of runners produced after the same manner as those of the Strawberry. The umbels of pale pink flowers surmount stems of considerable length; the flower stems trail upon the ground surface, and it is not by any means a rare occurrence for flowers and an embryo plant in the form of a "runner" to develop on the same stem. Although not so attractive as the majority of Androsaces, A. geraniifolia is distinctly interesting, and certainly worthy of a place in the rock garden or in the alpine house.

The "runners" form a ready means of propagation, whilst the cultural requirements of A. geraniifolia are identical with those necessary to the better-known species.

The plant, which grows from three to five inches in height, flowers over a long period and will only cease blooming with the autumn damp. *Ralph E. Arnold.*

VIOLA PINNATA.

THIS exquisite little Violet, which grows in the higher parts of the European Alps, in most cases delights the grower for a year or two (it may be, even more) and then dies. It is not like most of its race, for it develops no shoots by which it can be propagated by cuttings and, with me at any rate, never seeds, although it does in its native habitats.

The plant is a native of stony places and grows under conditions of apparent hardship which we cannot think would suit such a flower. Those who have seen it in the Alps speak of it as growing in the stony screes and moraines far up on the hills and sending up among the stones its slender stems with their fresh green, deeply-cut leaves and lovely flowers of lavender, white, or rosy-lilac.

I have never attempted to cultivate the plant under such conditions, but have grown it in sandy loam and in sandy peat, in which it did well for a year or two and then failed. My plants grew six or nine inches high, but when I try it again I shall plant it in the moraine or in a stony pocket made for the purpose. *S. Arnott.*

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DISCOVERY OF A NEW ARBORETUM IN FRANCE.

THE discovery of a new arboretum at La Fosse has created some excitement amongst French dendrologists. La Fosse is a small, out-of-the-way village in the vicinity of Vendôme, one hundred miles south-west of Paris. So far, the place has been completely overlooked, although planting has been carried out for several generations. The owner is M. Gérard, a rich business man.

The great interest of the place lies in the number of Conifers growing luxuriantly in ground devoid of lime, and the great number of half-hardy species which one would hardly expect to be thriving in such a latitude. This last fact is explained by the particularly sheltered situation. Running east to west at the bottom of the estate is the Loir, a river some twenty feet wide, and then, to the north, rises a steep hill, cut here and there by deep gullies and covered by dense woods. In these woods and gullies thus exposed to the full heat of the sun irregular strips of ground fifty feet to one hundred feet wide, running in all directions, have been cleared of native trees and planted with choice specimens. An ingenious system of open-air water circulation brings the necessary moisture to the trees whenever it is wanted. The whole Arboretum covers about seventy-five acres.

Near the country house, finely decorated with climbers, are beautiful specimens of evergreen trees such as Sequoia sempervirens (50 feet), Taxus baccata fastigiata (30 feet—Fig. 26,), Abies numidica (40 feet), Arbutus Unedo (20 feet), Prumnopitys elegans (a very big bush, 25 feet), and Sequoia gigantea (with a girth of 13 feet at the base).

As the visitor passes up the hill, he discovers many fine plants; Keteleeria Davidiana has found a congenial home in a sheltered spot and grows as straight as a pencil to a height of 20 feet. It is probably one of the biggest trees of its kind existing in Europe and bore cones in 1920. K. Fortunei, so difficult to cultivate, grows slowly and shows plainly its curiously suberous bark. Magnolias have become imposing trees in most cases, flowering and fruiting freely. M. macrophylla, M. hypoleuca, M. Fraseri, M. cordata, M. acuminata, M. glauca, M. Kobus, M. salicifolia, M. Watsoniana and M. grandiflora, are represented by fine specimens, while the beautiful M. Campbellii has attained a great size.

A big tree of Davidia Vilmoriniana with a very straight stem is another of the curiosities of the place. It is 25 feet high and flowered profusely last May, and carried a crop of green, pendant nuts last autumn.

Quite as interesting are two plants of Abies grandis and Pseudotsuga Douglasii, planted on the same day twenty years ago and growing side by side. A. grandis has distinctly outgrown its neighbour and has become an imposing tree, 65 feet high, showing an average growth of about three feet a year. Numerous and fine specimens of Abies bracteata, some fruiting, and amongst them one attaining 40 feet, are found in many parts of the Arboretum at La Fosse. In the same genus A. Pindrow, A. Pindrow brevifolia, A. firma, A. amabilis, A. arizonica, A. lasiocarpa, A. Pinsapo, and others, are well represented. Growing amongst more common species, Tsuga Brunoniana has found a congenial home in a cosy gully; and so has Pseudotsuga japonica, a very rare tree: Beautiful specimens of Picea Omorika and other species of the genus are met with in a tour of this Arboretum:

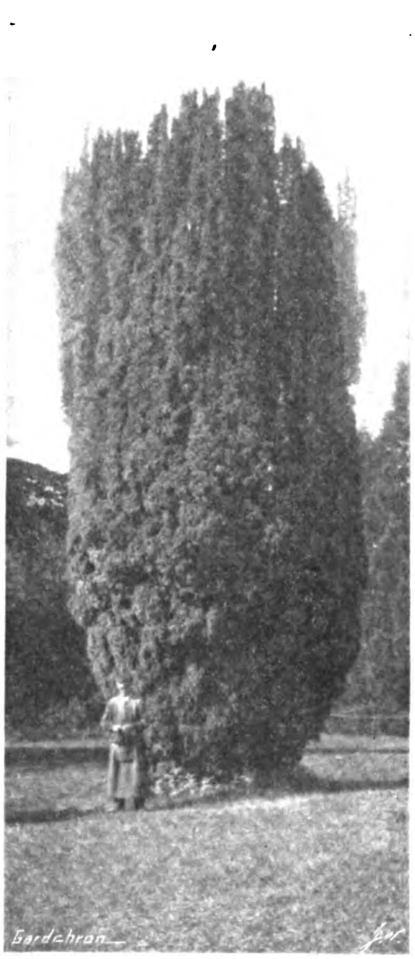

FIG. 26.—TAXUS BACCATA FASTIGIATA IN LA FOSSE ARBORETUM.

The genus Pinus has many representatives. P. Lambertiana has been planted in various places; one is 35 feet high and has been bearing cones for a few years. P. muricata has attained a height of 20 feet, P. Montezumae and P. patula are perfectly healthy and have a fine appearance; P. Malletii has made a fine straight tree.

An amateur cultivator of Conifers would also notice many interesting Junipers, including the rare and tender J. Cedrus, 8 feet high; Cupressus funebris, C. cashmeriana, C. macrocarpa, and C. Duclouxi, of great size; Podocarpus chilina, P. chinensis[?], in good condition; Fitzroya patagonica and Saxegothea conspicua making neat, small, bushes; numerous specimens of Cryptomeria, Torreya, Cunninghamia, Sciadopitys verticillata, Athrotaxis, etc.

Fine colour effects in autumn are obtained by numerous species of Carya, representing all species introduced to Europe; Nyssa, Acer, Quercus, etc. A fine specimen of Sterculia platanifolia attracts from afar and so does one of Eucommia ulmoides, some twenty feet high, a picture of health.

Other interesting trees or those of uncommon size, and shrubs, are Ehretia acuminata, Parrotia persica, Umbellularia californica, Hovenia dulcis, Illicium religiosum, Arbutus Menziesii, Colletia cruciata, Colletia ferox, Benthamia fragifera, Lagerstroemia indica, Camellia Sasanqua, Eryobotrya japonica, Nandina domestica, Poliothyrsis sinensis, Malus Sargentii, Feijoa Sellowiana, Cercidiphyllum japonicum, and Castanopsis chrysophylla

A small but well representative collection of new Chinese Rhododendrons is planted in the shade of a thin wood. Evergreen Oaks grow luxuriantly and make beautiful growth, notably Quercus Vibrayeana, Q. phyllyraeoides, Q. acuta, Q. cuspidata, etc.; while fine deciduous sorts are Q. Mirbeckii, Q. conferta, Q. dentata, Q. serrata, Q. variabilis and Q. imbricaria. Castanea japonica has fruited for many years.

Amongst Bamboos, Phyllostachys viridiglaucescens grows vigorously and reaches a great height.

Among Palms, Trachycarpus excelsa is doing very well and has been freely planted. Three specimens of Jubaea spectabilis, the largest three feet in girth at the base, withstood the winters for many years till 1916–17, when the cold proved too much for them. The owner has left the basal part of the plants on the spot as a curiosity.

The Arboretum of La Fosse contains many other items of interest that would take up too much space to describe here. It will prove a happy addition to the collections already known and show to many how well-selected places in comparatively cold countries can sustain many delicate and rather tender plants not generally considered hardy. *Ch. Leroy.*

THE FRENCH "COVENT GARDEN" MARKET.

The Agricultural Market Report in its issue of Friday, January 11, published by the Ministry of Agriculture, gave some interesting details of Les Halles Centrales, Paris, the principal wholesale fruit and vegetable market in France. Like Covent Garden Market in this country, the market in the French capital is a centre from which fruit and vegetables are distributed over the whole of the country.

The produce comes from the environs of Paris, and also from long distances, the principal centres being the valley of the Rhone from Lyons to Avignon; Hyeres; the Departments of Correze and Pyrenees-Orientales; the valley of the Loire; Roscoff and the Department of La Manche. The total net weight of fruit and vegetables in 1922 was about 80,000 tons, part of which, mainly fruit and early vegetables, is sent away to the large towns and, in the season, to seaside and inland pleasure resorts.

The market is strictly wholesale and is the source from which all the shops and the numerous retail markets of Paris are supplied. The number of recorded sales in 1922 was 2,597,000 or an average of 8,297 per day, but these figures exclude sales made by growers in the growers' market. The covered-in portion of the market is reserved for commission salesmen, while the wide streets between the market premises and the adjoining streets within a prescribed area are reserved to growers.

The market differs, however, from Covent Garden in that it is the property of the Paris Municipality and is controlled by regulations which prescribe in considerable detail the methods of sale, generally with a view to the protection of the grower who consigns his goods to the market for sale on commission. For example, the commission agents are liable to suspension for "unprofessional conduct," and to prosecution for falsification of sales, prices or charges. They are not allowed to act as both merchants and commission agents, as the law prohibits them from buying on their own account or carrying on business themselves or through other persons either inside the market or elsewhere, it being expressly provided that they are to be remunerated solely by commission to be arranged freely between them and their principals. The number is limited by the space available, but new admissions are made in accordance with detailed regulations which all aim at ensuring that only persons of reliability are permitted to act as commission agents.

A complete record of each sale has to be kept by the commission agents, giving the date and number of the sale, the name of the sender, the description of goods, weight or number of packages, method of sale and price, and the name of the purchaser, in addition to the charges incurred in respect of railway transport, cartage, octroi, tolls, weighing, telegrams, cheques, unloading, storage, commission, storage or carriage of empties, with the net result of the sales. These particulars are open to inspection by the grower, who can at any time within three years demand an investigation by the police of the facts recorded. All the documents relative to each sale have to be retained, therefore, for that period. The agents' books are also open to inspection by the authorities for the purpose of seeing that the regulations are fulfilled.

A daily record of prices is posted in the market, giving the maximum, minimum and average prices realised for each class of fruit and vegetables, these prices being settled by a Committee composed of the Market Inspector and three commission agents selected by their colleagues.

The system prescribed by these regulations evidently involves a good deal of clerical labour, but it is devised for the protection of the grower who is unable to attend to the market and sell his own produce. It is stated to work well in practice, and to give general satisfaction. The number of complaints investigated in 1922 was only seven.

The rate of commission charged varies, but averages from 8 to 10 per cent., and the sales are mostly made by agreement, that is by direct bargaining, but about 10 per cent. are made by auction.

These regulations relate only to the market where goods are sold on commission. In the growers' market, local produce grown outside Paris is sold by the growers themselves, or by dealers who have purchased it from growers, and no intermediaries are allowed.

THE ROSE GARDEN.

ROSE AMERICAN PILLAR.

For vigorous growth, luxuriance of foliage, and freedom of flowering, there is no climbing Rose to equal American Pillar, and it is equally at home whether grown on a pergola, wall, screen, or pillar. Planted in a fairly rich soil, it will produce growths quite ten feet in length each year, provided, of course, that the old and weak growths are removed in the autumn.

The foliage is a rich, glossy green which become delicately tinted with deep red later in the season. The flowers are produced rather late in the season, usually about the beginning of July in this country, and if this variety has a fault it is that there is no second crop of bloom. Nevertheless, the flowers are of moderately long duration and are freely produced in large trusses. The colour is clear rose-pink with white centre and the individual flower measures fully an inch across.

American Pillar was raised by the late Dr. W. Van Fleet, a distinguished plant breeder in America, and was introduced into commerce in this country by Messrs. H. Cannell & Sons, in 1909.

The illustration (Fig. 27) shows a good specimen of this variety growing in the Adelaide Botanic Garden, Australia, where, we understand, it responds readily to good soil and treatment and is admirably adapted for training over tripods.

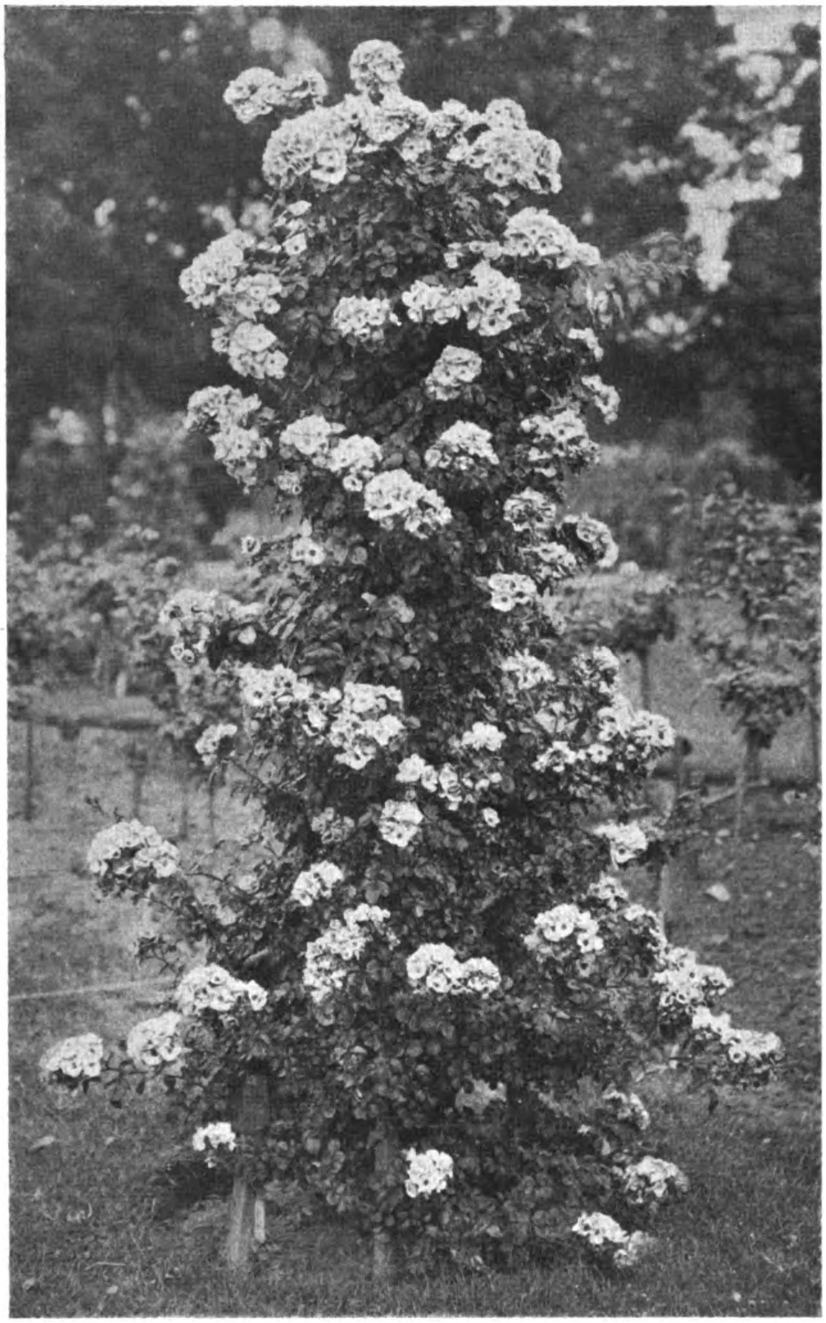

FIG. 27.—ROSE AMERICAN PILLAR IN THE ADELAIDE BOTANIC GARDEN.

PUBLIC PARKS AND GARDENS.

GLASGOW.

The present winter will probably test the hardiness of many shrubs which have passed unscathed through recent mild winters. In many cases, owing to the damp and sunless autumn, growth was not sufficiently ripened to withstand the succession of severe frosts and thaws experienced this winter. Bushes of Garrya elliptica in the open, usually at this season a delightful picture with light green catkins and dark green foliage, present a miserable appearance with the foliage singed to a dull grey. Hamamelis arborea appeared to have escaped harm, and it is now smothered with twisted yellow petals and crimson calyces. When massed with a suitable background, this is one of the most conspicuous winter-flowering shrubs. For decorative effect, however, it is not the equal of Jasminum nudiflorum whose golden blossoms associate so well with the berries of the Fire Thorn, Crataegus (Pyracantha) Lalandii.

Snow is a great cleansing agent and this is particularly noticeable in the Glasgow city parks where the foliage of the extensive plantings of Rhododendrons, Olearia Haastii, Box, Hollies, Berberis, Aucuba, Hedera, Skimmia, and broad-leaved Ligustrums, is unusually clean. The golden-leaved Privet grows well in urban areas and provides a welcome touch of colour in the shrubbery border at this season. In the Kibble conservatory a clump of Berberis japonica, planted out, is now in flower; as grown here the foliage is of unusual size and covered with a dense "bloom." Here also is Anopterus glandulosa with upright panicles of waxy pink and white Snowdrop-like flowers. On

the roof rafters of the conservatory flowers of Drimys Winteri and Clematis Armandii are expanding. Calliandra haematocephala is a beautiful stove shrub with bright red heads of flowers three inches across; the scarlet, thread-like filaments form a ball concealing the petals.

In the greenhouses there are batches of flowering plants — Cynthella and Roman Hyacinths, Narcissus Tazetta, N. Golden Spur, Primula obconica, P. malacoides, Cineraria Moorei, Coleus thyrsoideus, and Azalea indica. Well flowered standard plants of Forsythia suspensa with five feet stems, employed as "dot" plants in the greenhouse, are very effective. Other plants in flower include Chirita Rourkei with long-stemmed, fleshy, pale green leaves, and whorls of tubular flowers, white with a blue rim; Strobilanthes isophyllus; the blue-flowered Tillandsia Lindenii and Bilbergia nutans with clusters of Fuchsia-like flowers, yellowish green, the sepals and petals margined with blue.

At Springburn Park trained specimen plants of Chrysanthemums Niveus and Pride of Ryecroft are flowering. These are dwarf, wide, flat-topped plants. From an early stage the growths are trained around stakes, a method of training not often practised now-a-days. In the Reid winter garden, high above the Palms, Tree-ferns and Bamboos, Acacia dealbata is a mass of flowers. When planted out and given sufficient head room to develop. This Acacia attains almost tree-like dimensions. *F. W. J.*

FRUIT REGISTER.

HIGHLY COLOURED PEARS.

Several varieties of highly coloured Pears are of good quality and worthy of extended cultivation, whether for home or commercial purposes. All of them crop exceedingly well on bush, espalier, or half standard trees, in most soils and districts, provided phosphates are given as demands necessitate, and summer mulchings of well-rotted manure are applied over the roots. The colour may be intensified by a slight dressing of powdered sulphate of iron, say half-an-ounce to each tree, sprinkled on the mulching or surrounding soil the second week in June, and watered in, unless rain falls to save this labour. For early and mid-season shows, these highly-coloured fruits always gain points and admiration in separate dishes of one variety, or in collections, also in classes of six distinct varieties, the colouration showing up to a pleasing degree the russet and green markings of the remainder of the skin.

Doyenné d'Ete, or Summer Doyenné, which is probably the earliest Pear cultivated, ripens from mid-July to the end of August, and is of good quality. The fruits will not keep long after they are gathered, nevertheless, this variety is a profitable sort to grow. The skin is smooth, lemon-yellow, with a deep red blush, strewed with grey dots. The flesh is yellowish-white, juicy, sweet, and pleasantly flavoured. The eye is small; the stem three-quarters of an inch long.

Citron des Carmes is another excellent early Pear, ripening at the end of July or beginning of August. The tree is an abundant bearer and succeeds under all systems of training. The flesh is yellowish-white, juicy, with a sweet, refreshing flavour. The skin is smooth, yellowish-green, flushed with red next the sun and strewed with grey dots.

Clapp's Favourite is an excellent Pear of medium size and of first-rate quality if eaten from the tree. The skin is yellow and dark red-crimson streaked with darker crimson. It is a fine exhibition Pear. The flesh is white, juicy, and sweet, with an agreeable flavour. The eye is large and open, the stalk stout and over an inch in length.

Flemish Beauty is a September Pear known under many names. The fruit is above medium size, and has a pale yellow skin marked with pale brown russet and reddish colour on the side next to the sun. The flesh is yellowish-white, melting and sugary. The eye is open; the stalk an inch long.

Seckle (syn. New York Red-cheek) is a valuable dessert Pear, of small size, and handsomely shaped. It ripens in October and was in cultivation before 1765. The skin is yellowish-brown, bright red on the side next to the sun. The flesh is buttery, very juicy and has a pronounced aromatic flavour.

Comte de Lamy is a delicious Pear, ripening in October, and owing to its prolific cropping should be planted in every garden. The skin is yellowish-green and deep red on the side exposed to the sun; the surface is strewed with russety dots. The eye is small; the stem an inch long. The flesh is white, buttery, sugary and briskly flavoured. This variety gives the best quality fruits when grown in well-drained soils.

Louise Bonne of Jersey is a well-known dessert sort, ripening in October, the fruit being of medium size and truly pyriform. The skin is smooth, coloured yellow and crimson. It is a choice Pear, with every good quality, the tree, moreover, is a free cropper. *Pomona.*

(*To be continued.*)

VEGETABLE GARDEN.

EXHIBITION LEEKS.

In order to grow Leeks suitable for exhibiting, it is necessary for the plants to have a long season of growth. The seed should be sown thinly about the end of January in a shallow box or pan filled with light, sandy loam, enriched with well-rotted stable manure. The seed pan should be placed near the roof-glass in a warm greenhouse. Directly the seedlings appear they should be exposed to an abundance of fresh air to keep them sturdy, and they need very little water. When they are two inches high they should be transplanted into shallow boxes filled with light, rich soil, three inches apart each way and kept growing steadily. About the middle of April they should be stood in a cold frame, gradually hardened and planted out early in May in trenches prepared as for Celery, or they may be grown on the level in ground that has been well-worked and freely manured. It is a mistake to bury the manure too deeply. When transplanting the seedlings, cut the soil in the boxes into squares with a plant in the centre of each.

Leeks should be planted in single rows in trenches not less than nine inches apart, whilst on the level they may be put one foot apart in rows made eighteen inches asunder. Give the plants a copious watering to settle the soil about the roots, and water them frequently in dry weather, using liquid manure once weekly.

Exhibition Leeks should have long, stout stems, blanched to a length of twelve inches, and as the Leek has a natural tendency to thicken rather than lengthen its stem, measures should be taken during the growing season to cause them to lengthen. This may be effected in the case of those growing on the level by bandaging the stems loosely with brown paper, which should be slackened out as growth proceeds. Those in the trenches should be earthed up gradually, and if the stem is loosely bandaged with brown paper before the soil is applied this will make a considerable difference to the upward growth and there will be no necessity to remove some of the outer skins before the Leeks can be washed clean; drain-pipes not less than fifteen inches in length and two-and-a-half inches in diameter may be placed carefully over the plants to ensure long, well-blanched stems. Blanching makes very little difference to the growth of the plant. Leeks may be fed regularly with liquid manure until a short time before they are required for use. The best variety for exhibition is Prizetaker: this sort has long, thick stems, blanches a very pure white, and has a mild flavour. The Lyon is a much smaller variety, but it is one of the best for general culture and it possesses a most delicious flavour. *W. Miller, Warley Essex.*

NURSERY NOTES.

DANECROFT ROSERY.

This is the title of the Rose Nursery belonging to Messrs. Walter Easlea and Sons, at Eastwood, in Essex, a village a few miles from Westcliff-on-Sea, and close to Leigh-on-Sea. Mr. Easlea, Senr., has spent practically the whole of his business career, extending to half a century, in the growing of Roses, and he now has the assistance of his two sons, George and Maurice, who have, so to speak, been born and bred in the business.

The soil of the nursery is heavy, clay loam, and is ideal for Roses, indeed, the whole of that part of Essex is fine Rose country. When Mr. Easlea started in business the nursery was nine acres in extent, but it has grown in size until now it embraces seventeen to eighteen acres; a general view of the nursery is given in the photograph reproduced in Fig. 28.

For many years Mr. Easlea has engaged in the raising of new varieties and amongst the latest additions to the establishment is a special glasshouse devoted to the raising of seedling Roses, this taking the place of a smaller and more primitive house, in which, nevertheless, some excellent novelties were raised. In recent years a large glasshouse and new packing sheds have been constructed and in other directions there is evidence of the progress of the firm.

The nursery contains 100,000 Roses of all kinds and varieties. A speciality is made of standard Roses on the Rugosa stock, which the proprietor claims are as equally long-lived as those on the Briar stock, produce a mass of fibrous roots and bloom splendidly. The Pernetiana Roses are worked on Rosa laxa, a stock which suits them splendidly and gives greater hardiness to this type of Rose.

Our visit was made in late autumn and it afforded opportunity to observe the finest autumn-flowering varieties. Amongst those best in bloom were Lamia, a fine bedding Rose of reddish-orange colour; Lady Pirrie, a splendid garden Rose and especially good for town gardens; the colouring is coppery-salmon with apricot on the inner surface of the petals; Mabel Morse, an ideal garden Rose owing to its fine habit and freedom of blooming; the large, well-formed flowers are a rich yellow; Mme. Edouard Herriot, one of the best Roses for all purposes and equally as good for autumn blooming as for spring flowering, the petals are a delightful shade of coral-red with yellow bases; K. of K. a semi-double variety of a rich scarlet colour, a most decorative Rose for gardens; Golden Emblem, one of the finest of all yellow Roses and splendid for garden purposes; Christine, another fine golden variety, which is especially suited for massing; William F. Dreer, one of the newest Roses of deep golden-yellow shaded with rose tints; this fine novelty is of the same parentage as Los Angeles; the Queen Alexandra Rose, a variety of the Juliet type, with very dark green foliage; this was especially good; Walter C. Clark, a very fine Rose of maroon-crimson, shaded with black; Souvenir de Mme. Boullet with large, full flowers of dark cadmium-yellow and excellent in every respect; the Rev. F. Page Roberts, a new variety of the Duchess of Wellington type, but larger and fuller of petal; Olive Whittaker, which has a beautifully shaped bud, and when opened the blooms are coppery rose, passing to cerise and salmon; President Wilson, a large, full flower of shrimp-pink colour of a very clear shade.

Other good autumn-flowering varieties were Lady Alice Stanley a finely formed flower of deep coral-rose colour with a paler colour on the inner surface of the petal; Lady Hillingdon, a general favourite for garden purposes, producing an abundance of fine orange-yellow blooms: Irish Fire Flame, a continuous bloomer, producing large single flowers that open a charming orange shade, but are deeper coloured in the bud; Hadley, a fine Rose of rich crimson colour tinted with velvety black; Glowworm, a rich scarlet, suffused with orange; this Rose is a very free bloomer, flowering practically the whole of the season and produces single and semi-double flowers of the Austrian Copper Briar type; Countess of Warwick, a lemon-yellow variety edged with pink, excellent for garden decoration as well as for exhibition; Betty, a coppery-rose suffused with yellow; Château de Clos Vougeot, one of the finest of the dark coloured Roses, the tone being a rich velvety-scarlet passing to crimson-black; Betty Uprichard, a Rose with charming colouring the outer surfaces of the petals being a glowing carmine suffused with copper and orange and the inner ones a delicate pink; Mrs. J. Laing, an old sort, but still one of the best of the pink varieties, producing large, finely formed flowers; Admiral Ward, a large full Rose of crimson colour shaded with velvety-purple; Admiration, a fine bedding Rose of cream colour shaded with vermilion; Sunstar, a very fine Rose in the bud stage and coloured deep orange and yellow, edged and splashed with crimson; Severine, another most beautiful variety in the bud stage and with blooms of rich coral-red fading to a lighter red.

Other Roses that were finely in flower were Los Angeles, Cherry Page, Clare de Escofet, Clarice Goodacre, Covent Garden, C. V. Haworth, Dr. J. Drew, Eleanor Henning, Elizabeth Cullen, Emma Wright, Frances Gaunt, General McArthur, Gloire de Hollande, Gorgeous, Hoosier Beauty, James Walley, Joseph Hill, Lady Inchiquin, Lulu, Mme. Jules Bouché, Margaret Dickson Hamill, Melody Miss C. E. Van Rossem, Mrs. Aaron Ward, Mrs. Dunlop Best, Mrs. Fred. Cook, Mrs. Henry Bowles, Mrs. Henry Morse, Mrs. K. Rindge, Peggy Astbury, Prince of Wales, Souvenir de Georges Pernet and Vesta.

Amongst the many Roses raised by this firm are Lady Bowater, Cherry Page, Lamie, Lulu, Countess of Warwick, Mrs. Ramon de Escofet, Mrs. H. G. Green, Mrs. Edith Stanley, Climbing Mme. Abel Chatenay, and Prince of Wales, which won the Clay Challenge Cup in 1921 as the most fragrant variety of the year.

HOME CORRESPONDENCE.

Acalypha macrostachya.—I am surprised that your correspondent *H.W.*, in his article on stove plants in your issue of January 12, should make no mention of Acalypha macrostachya. This plant is easily grown, and the beautiful crimson foliage gives colour right through the year. Unless very large specimens are required, it is best to propagate it each year, putting in cuttings of soft side shoots as soon as they are obtainable, and striking them in a closed case with bottom heat. They need a loamy compost, with leaf-mould and a dash of wood-ash, and should be kept growing without a check, or they will drop their bottom leaves. I rather suspect that this plant has a partiality for lime, as it does particularly well with us at Swanley. *Lucy H. Joshua, Horticultural College, Swanley.*

Hieracium aurantiacum.—My note upon this plant in an issue of some weeks ago has brought me an interesting letter from Mr. H. E. Downer, superintendent of the grounds of Vassar College, Poughkeepsie, New York. I had stated that I knew of one plant struggling in the turf here in Torquay. He writes, "I think you will be interested to know that it is one of the most pernicious weeds in the eastern parts of the United States. Instead of its struggling in turf it is the turf that has to struggle here. I have seen it spread rapidly in lawns by means of its leafy stolons. In acres of pasture, where it seemed to be almost the only plant, the floral effect is grand, but it is a curse to the farmer. A broadcasting of salt at the rate of 18 lbs. per square rod is said to be the most effective means of combating it. It is commonly known here as the Devil's Paint Brush. H. pratense, a yellow-flowered species, known as the King Devil, is also making itself at home here; these are good examples of European plants that have made themselves very much at home in a new country." In a subsequent letter, I am informed that the salt treatment results from experiments conducted at the Vermont Experimental Station, where it was found that these weeds could be eradicated from pastures by means of salt. It may be of interest to observe that H. pratense is one of the species excluded by Hooker in his *Students' Flora*, while in Babington's *Manual* (9th Edition) apparently following the great authority on the genus, F. J. Hanbury, it is admitted as certainly naturalised and is placed next to H. aurantiacum. It is stated as growing near Selkirk and Edinburgh. Since both these species are naturalised in Britain and can grow so well in America, it is evident that they are well able to enter upon and possess any new country that may come near their requirements. Let Australia and New Zealand, therefore, beware! *R. Irwin Lynch, V.M.H.*

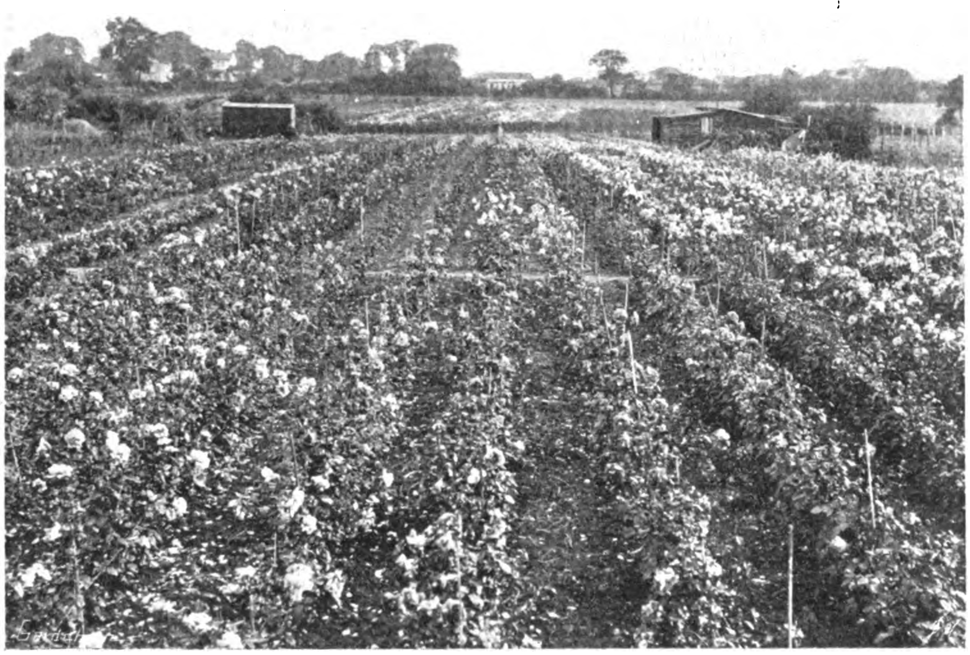

FIG. 28.—DANECROFT ROSERY, EASTWOOD, ESSEX (SEE P. 66).

Lapageria rosea.—My note on this plant (p. 368, vol. lxxiv) was prompted by the sight of two vigorous specimens which at the time of writing (November) were growing luxuriously and flowering profusely in a cool greenhouse under the conditions and treatment described. It is agreed that this plant, like most others, will not thrive under arid conditions, but it seems hardly necessary to point out that humidity, like temperature, may be more effectively controlled in the greenhouse than in the open air. Nothing could be more illustrative of the conditions under which these plants flourish than the opulence of those which are growing, or used to grow, in the Temperate House at Kew. These specimens, growing under essentially greenhouse conditions are probably the finest in this county. I was nevertheless very interested to learn of the growth of this subject under outdoor conditions, from your several correspondents, but I venture to suggest that the successful cultivation of this sub-tropical plant under natural conditions in this fickle climate will always be more or less hazardous. Lapageria rosea is a native of Chili, and was introduced to cultivation in 1847. Some varieties are better than others, and a good one is as easily grown as a poor one. *W. Auton.*

SOCIETIES.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

Annual Meeting.

The annual meeting of the Gardeners' Royal Benevolent Institution was held on the 24th ult. at Simpson's Restaurant, 101, Strand, London. The annual meeting was preceded by a special general meeting called for the purpose of amending Rule 3, Sub-Section 2. The object of the alteration was to enable assistance to be given to those persons who were eligible, including head gardeners and their foremen, market gardeners, market growers, nurserymen and seedsmen, foreman nurserymen and seedsmen, without the stipulation that they should have served in such capacity for a period of thirty years.

Mr. H. Morgan Veitch presided at the special general meeting and he stated that the object in altering the Rule was to meet an objection raised by members of the horticultural trade as to the number of years the candidate must have been engaged in any particular branch of horticulture. The alteration of the Rule, he stated, still leaves it in the power of the Committee to decide as to which candidates are eligible and deserving of assistance, whilst a further safeguard would be that the election of any candidate would be finally decided by the supporters at the election by ballot. It was the wish of the Committee to remove any obstacle which might prevent the free flow of funds to the Institution. In proposing the resolution to amend the Rule, Mr. A. J Wood stated that the Committee hoped the alteration would be the means of the Fund obtaining greater financial support from traders, although it is probable that there will now be a greater responsibility thrown on the Committee in making the selection of candidates. The proposition was seconded by Mr. A. Bullock and carried unanimously. On the proposition of Mr. Leonard Sutton, Mr. H. Morgan Veitch was heartily thanked for presiding.

The Annual Meeting was held at 3 p.m. when those present included Messrs. Leonard

Sutton, A. J. Wood, A. Bedford, J. Heal, J. Linford, A. Bullock, N. F. Barnes, G. F. Tinley, H. J. Cox, P. Barr, T. Hiehle, D. Ingamells, G. Monro, W. E. Wallace, C. R. Fielder and P. Etheridge. Mr. Leonard Sutton presided, and after the Secretary had read the minutes convening the meeting and the minutes of the previous meeting, the Report of the Committee for 1923 was presented.

EXTRACTS FROM REPORT OF THE COMMITTEE.

THE Committee in submitting their 84th Annual Report, together with a statement of receipts and expenditure for the year 1923 as certified by the Auditors, desire to place on record an expression of their thankfulness at having been enabled to continue the work of affording aid to those men and widows alike who have fallen in the battle of life, through no fault of their own, and who have been compelled in their helplessness to turn to the Institution for that assistance which happily it is still able to give.

During the past year several pensioners have passed away, six of whom left widows, whose cases having been considered and found deserving were placed on the funds for the Widows' Pension in succession to their late husbands, under Rule III-13. In addition to those who have died, two pensioners have been removed to an infirmary, and two others have resigned the pension owing to their altered circumstances.

For the election this day, there are 46 candidates, and the Committee recommend that 15 be elected. It is with much regret they feel unable to propose a larger number, but in the present state of the funds they are quite unable to do so. Unfortunately, therefore, 31 applicants will have to wait for another year before they can hope to receive the permanent aid which they so much need. The Special Funds at the disposal of the Committee, viz.: The Victorian Era Fund and The Good Samaritan Fund continue to be of incalculable benefit. The income from the former has been applied in granting a yearly allowance to those unsuccessful candidates at the last election who formerly were subscribers, while a proportion of the income from the latter fund has been used in giving relief to 42 applicants in distressed circumstances who were most grateful for the timely assistance thus afforded.

The Seventy-eighth Annual Festival in aid of the funds, which was held in June last at the Hotel Victoria, under the presidency of the Rt. Hon. The Earl of Plymouth, proved very successful, and was the means of raising a substantial sum towards carrying on the work.

The Committee take this opportunity of expressing their grateful thanks to Lord Plymouth for his eloquent advocacy of the claims of the Institution for continued and increased support, and which met with so liberal a response. Sincere thanks are also given to those gentlemen who kindly acted as Stewards; to those who presented flowers for the decorations; to the Horticultural Press for their kind and gratuitous services; and to other friends who directly or indirectly gave material help on the occasion.

The Committee respectfully and gratefully acknowledge the renewed annual subscriptions from His Majesty the King (Patron), and H.R.H. The Prince of Wales (President): also an amount graciously granted by express desire of Her Majesty Queen Alexandra from the proceeds of "Alexandra Day."

Sincere thanks are likewise given to the following generous supporters, viz., Sir Edward Stern, Bart., R. Cory, Esq., Major Churcher, Messrs. Rothschild & Son, Messrs. William and Edward Sherwood, Messrs. Sutton & Sons, Messrs. E. G., Geo. and B. J. Monro and Mrs. Monro, Edward White, Esq., V.M.H., and Sir Harry J. Veitch, V.M.H. (Treasurer); also to the organisers of concerts, &c., for the benefit of the funds, among whom may be mentioned the "Geo. Monro" Concert Committee, the Altrincham and District Gardeners' Improvement Society, Mr. F. J. Chittenden, F.L.S., V.M.H.; Mr. G. Wilson-Fox, Wisley; Mr. W. J. Auton, Pyrford, and Mr. P. O. Knowles.

The Committee are much indebted to the Rt. Hon. Viscount and Viscountess St. Cyres, The Rt. Hon. Lord Northbourne, The Lady Battersea, C. W. Dyson Perrins, Esq., J.P., and Roger Corbet, Esq., for again allowing their beautiful gardens to be opened to the public on behalf of the Institution, and they would also record their grateful thanks for the kind and gratuitous services rendered to the Institution by Messrs. H. Morgan Veitch and Bilney (Hon. Solicitors), and Messrs. Geo. Cobley, Kay & Co. (Chartered Accountants).

Reference is likewise made to the kind gift of a year's allowance to seven unsuccessful candidates by R. Cory, Esq., E. G. Monro, Esq., Geo. Monro, Esq., Mrs. Monro, Leonard Sutton, Esq., J.P. C.B.E., H. Morgan Veitch, Esq., and A. J. Wood, Esq., for which the recipients were most thankful. The several Auxiliaries still prove invaluable adjuncts to the work of the Institution, and the Committee most gratefully thank the following honorary officers for their kindly interest and much appreciated services.

The death roll in relation to the Charity was a heavy one during the past year, and the Committee have specially to lament the loss of their valued colleague, Mr. Owen Thomas, V.M.H., who had been a member of the Board of Management for thirty years, and was always ready in every possible way to further the interests of the Institution. Other sad losses are those of Mr. S. J. Blackwell, Mr. Thomas Challis, Mr. T. Carew Daniell, Mrs. Gillett (who bequeathed a legacy of £200 to the Charity), Mr. Gerald T. Harrison, Mr. J. Harris, Mr. Alfred C. Ireland, Mr. W. Howard Palmer, J.P. Mr. George H. Richards, Mr. G. W. Ryder, and Mr. J. G. Williams.

The removal of these warm supporters whose help and interest will be sorely felt, is deeply deplored, and as a tribute to their memory it is earnestly hoped that their places will be speedily filled.

In conclusion, whilst the Committee acknowledge with the deepest gratitude the practical sympathy and aid accorded to their work, on behalf of this National Horticultural Charity, extending over a period of 85 years, they plead with all sincerity and earnestness, not only for a continuance of that support, but for an increased interest and further means not only to enable them to carry on the good work as at present, but to afford assistance to many more of those sad cases which unfortunately in increasing numbers come before them and so pathetically appeal for help.

HARRY J. VEITCH, *Treasurer*
LEONARD SUTTON, *Chairman of Committee.*
GEORGE J. INGRAM, *Secretary*

The Secretary also read the Balance Sheet which is published below.

The Chairman, in moving the adoption of the Report, congratulated the Secretary in being able to present such an excellent account of the past year's work, and for the manner in which it was drafted. It was a matter for regret that out of forty-one candidates which the Committee considered eligible, they were only able to recommend fifteen for election that day. They were all sorry that they could not elect a greater number, and it is probable that next year there would be a greater number seeking election. They had, however, done the the utmost they could, for they must think of the future to assure that the pensions already granted would be paid, and in order to do this they must have a balance representing investments. One of the most gratifying items in the Report was that referring to the success of the Annual Festival Dinner, and he took the opportunity to thank all who had contributed to its success and especially those gentlemen who come forward each year and take the chair at these festivals. He was now able to state definitely that His Royal Highness the Prince of Wales would preside at the festival dinner of the present year. There would, however, be an alteration in the time the dinner was held for, owing to His Royal Highness having to go to South Africa, it was impossible to hold it at the usual time and he had given Mr. Ingram the choice of presiding at the dinner another year or holding it in the autumn. The Committee, however, decided not to postpone the arrangements and the dinner would take place early in October. The continued support from the members of the Royal Family was very gratifying and all were especially pleased by the grant from the proceeds of Alexandra Day, made by Her Majesty Queen Alexandra after she had been approached by the Secretary. Mr. Sutton stated that he would like to make special mention of those who had thrown open their gardens on behalf of the Institution. By doing this they gave pleasure to their poorer neighbours and helped the Fund. He hoped that other gardeners would jog their employer's memory and that more gardens would be thrown open in this way for the benefit of the Institution. He was very glad to know that the local auxiliaries had done so well during the year, but here again, there should be many more and he appealed to gardeners to interest their fellow gardeners in their district in instituting auxiliaries of the fund. Mr. Sutton referred to the losses by death the institution had sustained during the past year and especially referred to the late Mr. Owen Thomas, whom they all missed that afternoon. The adoption of the Report was seconded by Mr. C. Fielder.

Mr. Etheridge congratulated the Secretary on the excellent Report, and said everyone knew that the members of Committee took a deep interest in their work, whilst the Secretary was always ready to further the interests of the Institution. He, Mr. Etheridge, had come to the meeting especially that day to offer a word of cheer to the Committee, as he wanted them to realise that they had the staunch support of the subscribers. He was glad to see that they had been able to invest £1,000 during the past year. He considered the Gardeners' Royal Benevolent Institution one of the best philanthropic societies in the land.

The Report and Balance Sheet were adopted by the unanimous vote of all present without further comment.

At this stage of the proceedings the election of officers was proceeded with. On the proposition of Mr. N. F. Barnes, seconded by Mr. P. Barr, Sir Harry J. Veitch was re-elected Treasurer and a vote of thanks accorded him for his valuable services. On the proposition of the chairman the following telegram was despatched to Sir Harry: "The members and subscribers at the annual meeting send sincere greetings and heartfelt good wishes that you may long be spared as their Treasurer."

Mr. G. Ingram was re-elected Secretary, Messrs. Thomas Manning, Bert. J. Monro, and Messrs. George Cobley, Kay & Co. re-elected Auditors, and the Arbitrators were also re-elected.

At this stage the meeting adjourned for the taking the ballot and Messrs. H. J.

RECEIPTS AND PAYMENTS OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

FOR THE YEAR ENDING DECEMBER 31, 1923.

RECEIPTS.	£	s.	d.	£	s.	d.
To Balance with Bankers, January 1, 1923—						
On General Account ..	1,112	19	7			
On Deposit Account ..	523	10	3			
Balance with Secretary, January, 1, 1923	1	1	10			
				1,637	11	8
Annual Subscriptions	1,197	9	6			
Donations	2,004	15	10			
Schröder Annuity	20	0	0			
Legacy—Mrs. Gillet .. .	200	0	0			
Dividends and Interest ..	937	6	1			
Income Tax refunded ..	207	17	5			
				4,567	8	10
Transfer from "Good Samaritan" Fund				100	0	0
Geo. Monro Trust Fund .. (Further contributions making £1,100 invested per contra)				600	0	0
				£6,905	0	6

PAYMENTS.	£	s.	d.	£	s.	d.	£	s.	d.
By Annuities and Gratuities .							4,243	17	10
Rent, Fuel, Lighting, and Salaries of Secretary and Clerk				650	18	0			
Expenses of Annual Meeting and Election .				6	8	0			
Printing and Stationery ..	165	3	10						
Less Advertisements	45	16	10						
				119	7	0			
Cheque Books .. .				18	0	0			
Postages: Reports, Polling Papers, Appeals and Ordinary				52	13	0			
Telephone Charges				10	13	10			
Cost of Wreath				2	2	0			
Carriage, Telegrams, Typing and Incidental Expenses ..				10	5	10			
							870	7	8
Geo. Monro Trust Fund—									
Purchase of Victoria 5% 1932–42							600	0	0
Purchase of War Loan 5% 1929–47							500	0	0
Balance with Bankers, December 31, 1923—									
*On General Account ..				682	11	9			
Balance with Secretary, December 31, 1923				8	3	3			
							690	15	0
							£6,905	0	6

* £1,200 is required to meet the Quarterly payments due on December 31, 1923.

We have examined the foregoing Accounts of Receipts and Payments with the Books and Vouchers, and we certify that, to the best of our information, they are correct. We have also verified the Investments and Bank Balances of the Institution.

(Signed) GEORGE COBLEY, KAY & CO. (Hon. Auditors)
Chartered Accountants.

24 *January*, 1924.

Cox, G. Monro and D. Ingamells were appointed scrutineers. Later in the afternoon the results were announced as follow :—

Birkinshaw, William, 5,242 ; Ireland, Henry, 4,597 ; Ashman, William F., 3,699 ; Taylor, William, 3,696 ; Weaver, Louisa E., 3,639 ; Drewett, Stephen, 3,502 ; Evans, William, 3,441 ; Kent, Henry, 3,416 ; Wixon, Kate, 3,375 ; Legassick, James, 3,261 ; Hill, Mary A., 3,258 ; Carr, Emily Mary, 3,233 ; Moxham, Alice J., 3,134 ; Rickards, John, 3,107 ; Radley, William, 2,853.

Sums of £10 each were given to six unsuccessful candidates by Sir Harry J. Veitch, George Monro, Esq., E. G. Monro, Esq., Mrs. Monro, Leonard Sutton, Esq., and A. J. Wood, Esq.

ROYAL HORTICULTURAL.

January 29. Notwithstanding the railway strike there was a capital exhibition at the Royal Horticultural Hall on this date; moreover, the attendance of Fellows was good, although there was no crowding.

Finely grown Orchids were displayed by private and trade growers. Carnations were very much in evidence and early, hardy flowers numerous. Daffodils and Hyacinths figured prominently and Messrs. Sutton and Sons exhibit was much admired. Cyclamen, Primulas, Iris tingitana, early-flowering shrubs and Apples were other prominent subjects in a bright display.

The Floral Committee settled down to work in two sections. Section A, with Mr. H. B. May as Chairman, will deal chiefly with florists' flowers, while B Section, over which Mr. Gerald Loder is to preside, will consider the merits of shrubs, new species and rare plants. This innovation should, at least, have the effect of getting the work of adjudication carried out more speedily than heretofore, when the exhibits have been numerous; it should also insure kindlier treatment for florists' flowers.

A reduction of the quality or grade of medal awarded at the fortnightly meetings is another innovation. Hitherto the various standing committees have had Flora, Banksian and other medals to draw upon for awards to groups, but now the Floral and Orchid Committees' medal awards will be limited to Banksian and Gold medals, the Flora medals being reserved for Chelsea and other big exhibitions.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Gurney Wilson (hon. sec.), Richard G. Thwaites, J. Wilson Potter, H. T. Pitt, Fred. K. Sander, John C. Cowan, Chas. H. Curtis, Jas. O'Brien and the Hon. H. McLaren.

AWARD OF MERIT.

Odontonia Sheila (*Miltonia Bleuana* × *Odm. Lambeauianum*), from H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). A charming hybrid, in shape approaching Miltonia Bleuana, all the segments being broad and well displayed; they are blush-white tinged with claret-red, the lip having a prominent crest with a blotch of claret-red in front.

GROUPS.

A Silver-gilt Banksian Medal was awarded to J. J. BOLTON, Esq., Claygate Lodge, Surrey (gr. Mr. S. Lyne), for a good group containing a rich variety of Odontiodas and Odontoglossums; a plant of Odontioda Colinge, var. Rosemary, had a fine spike of eleven showy claret-red flowers with a narrow white margin: Oda. Brockenhurst had equally showy deep red flowers; Odontioda West Point Beauty is a large, rich scarlet flower. The Odontoglossums included O. Corona, purple with a white margin; O. laudatum, a richly coloured new form of a well-known variety and O. Mirum, Claygate Lodge variety (Wilckeanum × crispum xanthotes), a superb form with very large and perfectly-shaped golden-yellow flowers with a broad white margin.

R. GERRISH, Esq., Milford Manor, Salisbury (gr. Mr. Sorrell), was awarded a Silver Banksian Medal for a selection of well-grown and finely flowered hybrids. The new Odontioda Marietta (Oda. Madeline × Odm. Dusky Monarch), carrying a fine spike of claret-red flowers with a white front to the lip was conspicuously good. Other fine Odontiodas were included, also a fine set of richly coloured Odontoglossums, all splendidly flowered.

Messrs. COWAN AND Co., Southgate, were awarded a Silver Banksian Medal for a pretty and interesting group, in the centre of which were two fine varieties of their Brasso-Cattleya British Queen with very large lilac-rose flowers; good Cattleya Tityus, C. Ultor and other Cattleyas, and Laelio-Cattleyas; and Cymbidium Curlew, var. Gold Wings, a charming variety having a distinct yellow tint.

G. H. JONES, Esq., Doddington, sent Brasso-Cattleyas Gatton Lily, In Memoriam Mrs. E. M. Jones (B.-C. Digbyano-Mendelii × C. Trianae albans), a flower of good shape, coloured light rose with ruby-crimson front to the lip.

Messrs. SANDERS, St. Albans, showed a fine specimen of their Cymbidium Albatross with spreading, wax-like, white flowers.

Floral Committee.

Present (A Section): Messrs. H. B. May (in the chair), A. Turner, H. J. Jones, J. M. Bridgeford, John Heal, C. R. Fielder, W. Howe, J. B. Riding, H. A. Darlington, W. B. Gingett, W. Stephens, D. B. Crane, W. P. Thomson and Chas. E. Pearson.

Present (B. Section): Messrs. G. W. Loder (in the chair), W. J. Bean, Sydney Morris, E. A. Bowles, R. W. Trotter, H. V. Warrender, Reginald Cory, Arthur Bedford, T. Hay, F. G. Preston, C. Williams, Jas. Hudson and G. Reuthe.

AWARDS OF MERIT.

Carnation Freddie Ward.—A very fine perpetual-flowering variety with a promising future. The flowers are of large size, deep crimson-red, with a very slight fragrance. Shown by Mr. G. CARPENTER, West Hall Gardens, Byfleet.

Rhododendron scintillans.—A charming little species of the Lapponicum series, from North-West Yunnon. At Bodnant it has withstood severe frost, snow, and bitter wind, and continued to bloom. The flowers are small and somewhat like those of the popular Azalea amoena, but are of a purplish lilac colour. They are produced in terminal clusters at the ends of the short twigs. Shown by Lady ABERCONWAY and Hon. H. D. MACLAREN, Bodnant, N. Wales.

Gladiolus Melleri.—A South African species with small, flame-coloured flowers, which suggest affinity with G. primulinus. As shown it is 2½ to 3 feet tall and carries about six flowers on each slender spike. Shown by C. van de WEYER, Esq., Corfe Castle.

OTHER NOVELTIES.

Olearia ramulosa, a loose-habited shrub with small, starry, pink flowers was shown by Messrs. STUART LOW AND Co.; it might be easily mistaken for a Michaelmas Daisy if it flowered in autumn.

Two large-flowered Carnations of deep maroon colour were exhibited by SIR A. MOND (gr. Mr. Clipstone), Melchet Court, Romsey; the darker one was named Nora Mond and the more crimson variety Sir A. Mond.

Prunus deliseus (?), a white-flowered species, was also exhibited from the Bodnant Gardens' N. Wales, with a note that "it is suggestep that this Prunus, with its early flowers and angular growth, is the original of the 'Hawthorn pattern' decoration on Chinese porcelain."

GROUPS.

MESSRS. SUTTON AND SON contributed a very charming display of forced Daffodils, Tulips, Hyacinths, Lily of the Valley, and Iris. The ornamental bowls, numbering about one hundred and fifty, were arranged on a low table draped in black velvet so that the flowers could be seen to the best advantage, and the arrangement was particularly attractive. The early flowering Daffodil Cervantes was represented by a number of bowls, and in appearance it closely resembles Princeps, but it forces earlier than that variety and is very free flowering. Other Narcissi included Soliel d'Or, Double Roman, and Paper White. Prepared and Cynthella Hyacinths were shown in many shades of blue, pink, red, and yellow, while among Tulips were excellent flowers of Mon Tresor, of a pure golden-yellow colour, and the best of its colour for early forcing; Proserpine, rose; Ibis, a comparatively new variety with large, brilliant pink blooms; Salvator Rosa, a double, deep pink flower; Tournesol, a red-yellow double variety, and Keizerskroon, red with yellow edge (Gold Medal).

Messrs. J. CARTER AND Co. staged a bright display which included a large number of fancy wicker baskets filled with cut spikes of Iris tingitana. The centre of the group was filled with large baskets of Primula malacoides Princess Mary, which possesses large spikes of clear rosy-mauve flowers, and Hyacinth Carter's Miniature Red (Silver Banksian Medal).

A large table length was filled with seedling Cyclamen and Primulas from the NAPSBURG MENTAL HOSPITAL (gr. Mr. W. J. Jennings), St. Albans, the plants being very well grown. Of special interest were the strains of Primula obconica, which include a form with pure white flowers and fimbriated petals, while there was also a pleasing strain obtained by crossing Primula sinensis with P. s. stellata (Silver Banksian Medal).

Messrs. P. HOPMAN AND SONS, Hillegom, Holland, staged a very interesting group of Multiflorus Hyacinths which were represented by such varieties as Bismark, light blue; L'Innocence, white; Queen of the Blues, light porcelain blue; City of Haarlem, pale yellow; Lady Derby, rose-pink, and Marie, deep blue. The bulbs had been specially prepared, the effect of the treatment being that the mother bulb had been made to split into several offsets, each offset developing a spike of flowers, so that from one bulb six to nine good spikes were obtained. (Bronze Banksian Medal.)

Messrs. R. AND G. CUTHBERT also staged a well arranged exhibit of miniature Hyacinths in white, pink, blue and red colours, together with Freesia refracta alba, and at one end of the group a collection of Conifers was exhibited, including the golden Retinospora pisifera filifera aurea, Pinus Cembra, the Swiss Stone Pine: Tsuga Sargentii pendula, the dwarf Retinospora obtusa nana, and the Umbrella Pine, Sciadopitys verticillata. (Silver Banksian Medal.)

Messrs. STUART LOW AND Co. showed a selection of Carnations, making a bright patch of colour. Amongst the novelties were Reginald Cory, a large flower of bright rose colour; Hon. Nita Weir, salmon pink; Eileen Low, one of the best of salmon-pink varieties, and Shelia Greer, orange ground, flecked with scarlet. The same firm also showed a collection of greenhouse flowering plants, of which Erica melanthera, Gardenia citriodora, Olearia ramulosa, with feathery foliage and small pink flowers, and Acacia Baileyana were a selection (Silver Banksian Medal).

Messrs. ALLWOOD BROS. made a very pleasing contribution of Carnations, arranged in large ornamental vases. The variety Coral Gem was very attractive, the flowers being well formed and the colour a bright shade of rich apricot. Other especially good vases were those of Laddie, salmon pink; White Pearl, a large flower; Topsy, crimson; Maine Sunshine, yellow; Chintz, white ground flaked with crimson, and Marion Wilson, orange yellow, splashed with red (Silver Gilt Banksian Medal).

Mr. C. ENGELMANN also staged a small group of Carnations of remarkable quality, the colours being exceptionally bright. Outstanding varieties in this collection were: Saffron, yellow; Goliath, salmon-pink; Peerless, rose-pink; Cupid, salmon-pink; Aviator, scarlet, and Nigger, crimson (Bronze Banksian Medal).

From Mr. L. R. RUSSELL came a good display of well-flowered Azaleas of the indica section, which included Niobe, white; Madame Patrick, bright rose; Daybreak, a charming shade of salmon-pink; Apollo, bright brick-red, and Van Damme, pink, edged with white. Specimens of Prunus triloba were displayed, and towards the front of the exhibit were plants of Tillandsia Lindenii, with spikes of pale blue flowers, and T. L. Duvalii with flowers of a deeper shade of blue (Silver Banksian Medal)

Messrs. J. PEED AND SONS had a fine display of Iris tingitana and Cyclamen, the latter being very fine specimens and represented by the varieties Giant White, Giant Crimson, Salmon King, and Salmon Scarlet (Silver Banksian Medal).

Hardy Rhododendrons were shown by Messrs. R. GILL AND SON, and included the magnificent R. argenteum, with large trusses of pale cream flowers; R. calicalyx, pale blush; R. Cornubia, scarlet, and R. Nobleanum, scarlet; Erica codonoides and Primula Jewel were also shown together with a fine batch of Arum Lilies.

Close by, Messrs. BARR AND SONS showed forced Hyacinths, in front of which were arranged border and rock plants including Crocus Tommasinianus Helleborus niger altifolius and Narcissus bulbocodium Clusii, while Messrs. J. CHEAL AND SONS arranged a small rock garden freely planted with Primula Wanda, Muscari azureum, Synthyris reniformis, and Crocus versicolor; Hamamelis japonica rubra, the flowers of which are tinged with red was also shown (Bronze Banksian Medal). Mr. G. W. MILLER brought a collection of hybrid Polyanthuses and Primulas of many shades of colour (Bronze Banksian Medal), and Messrs. CARTER PAGE & CO. made a pretty rock garden in which Primula Juliana, Iris sind-pers, and Crocus Sieberi, were a few of the choicest plants (Bronze Banksian Medal). Messrs. J. WATERER, SONS AND CRISP, LTD., made a feature of Iris stylosa and I. s. lilacina, I. alata, Sisyrinchium grandiflorum, and Om phalodes Cappodocica (Bronze Banksian Medal), and Messrs. SKELTON AND KIRBY showed Gentiana acaulis, Saxifraga apiculata, Morisia hypogaea set in a rock garden display backed with evergreen shrubs.

A very interesting collection of Conifers was staged on a table by Mr. G. WHITELEGGE. The specimens were growing in pots, and of particular merit were Abies pungens Kosteri glaucum, with bluish foliage; Retinospora obtusa nana, Picea excelsa Morinda, P. e. humulis, P. dumosa, and the pigmy Cupressus tetragona minima. Female plants of Skimmias japonica in full berry and Magnolia stellata were also included in the group.

A choice collection of hardy flowers and shrubs was again shown by Mr. G. REUTHE, who included the deep-blue, sweetly scented Iris histrioides major, the true Anemone palmata, with yellow flowers, Crocus laevigatus rose-purple, Leucojum carpathicum, Rhododendron mucronulatum, and Garrya elliptica. (Silver Banksian Medal.)

In a corner of the hall Messrs. WM. CUTBUSH AND SON arranged a rock garden backed with dwarf shrubs and planted with batches of Helleborus niger major, Primulas Juliana, P. Hadley Glade, Iris sindjarensis and other early flowers (Bronze Banksian Medal).

Messrs. BAKER AND CO., LTD., also showed a choice collection of alpines and shrubs, the latter including Juniperus Pfitzeriana, Cupressus erecta viridis, Veronica Aoire, and Thuya occidentalis Hoveyana.

Alpines in pots were shown by Messrs. R. TUCKER AND SONS, who made a feature of Saxifraga Brookside, a fine type belonging to the Burseriana section, with overlapping petals, S. burseriana tridentata, S. b. sulphurea, S. b. major, S. b. minor, Primula Winteri and P. Juliana (Bronze Banksian Medal). A very well arranged rock garden was exhibited by Mr. F. G. Wood, who showed Soldanella alpina, Primula lilacina, Saxifraga hybrida "Gem," with pink-blush flowers, Hedera conglomerata, and Coronilla glauca variegata (Bronze Banksian Medal).

Violets were shown by the Misses ALLEN BROWN, the flowers being very clean and large, particularly those of Princess of Wales, the double Queen Mary; Comte de Brazza, white; and Mrs. J. J. Astor, a double flower of heliotrope colour (Bronze Banksian Medal). Mr. B. PINNEY also staged a small group of violets, and Mr. J. KLINKERT exhibited a good selection of topiary specimens in Box and Yew.

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (Chairman) J. Cheal, Geo. F. Tinley, S. B. Dicks, J. Wilson, G. Reynolds, G. Kelf, H. A. Prince, W. G. Lobjoit, J. C. Allgrove, W. H. Divers and H. V. Taylor.

Mr. N. FULLEGAR, Eastbury Manor Gardens, near Guildford, showed a dish of Ribston Pearmain Apple. This is an old variety, although not common in cultivation. It is described by Hogg in the *Fruit Manual*, who states that it is an Apple of first-rate quality both for culinary and dessert purposes, and in use from November to April. It was introduced by the Royal Horticultural Society from U.S.A., and is said to be grown extensively in the middle States of America. The fruit is of large size and of very irregular shape. The best and most even specimen bore some resemblance to Sturmer Pippin and it was flushed on the sunny side, such as in Sturmer Pippins imported from Australia. The tree from which the fruits were gathered was said to be a very regular and heavy cropper. The quality is excellent and as it is a dual-purpose Apple the Committee considered it worthy of inclusion in the trial of commercial varieties at Wisley.

Several trees of Apple Ontario were shown by Mr. J. C. ALLGROVE with fruits still hanging. In one case there were as many as ten Apples on the tree and other specimens bore eight and nine. This also is an American Apple and whilst Mr. Allgrove stated that it crops regularly and freely with him at Middlegreen, Slough, the experience of others was that it is a somewhat uncertain bearer and is of no value in some districts. It was raised by Mr. C. Arnold in Ontario from a cross between Wagener and Nothern Spy. Bunyard, in *A Handbook of Fruits*, states that the fertility is remarkably regular and that the variety is worthy of extended cultivation. Mr. Allgrove also showed excellent fruits of Cox's Orange Pippin, King of Tompkin's County, Newton Wonder, Wagener, and Caville des Femmes. (Silver Hogg Medal).

Messrs. BUNYARD & CO. again exhibited a collection of Apples representing the pick of the varieties in season. They were Baxter's Pearmain, Sanspareil, Old Royal Russet, Braddick's Nonpareil, Cockle's Pippin, Allington Pearmain, Belle de Boskoop, Mabbott's Pearmain, Baumann's Reinette, Blenheim Pippin, Brownlees' Russet, Heusgen's Golden Reinette and Claygate Pearmain.

Obituary.

Joseph B. Service.—We have to record the death, on January 19, of Mr. Joseph B. Service, formerly one of the partners of the late firm of Messrs. James Service and Sons, nurserymen and seedsmen, Maxwelltown, Dumfries, which took place at his residence, Milnhead Cottage, Dumfries. Mr. Service was for many years associated with his late father and his late elder brother Robert in business and carried on a very successful trade for a number of years. Some time after the death of their father the two sons dissolved partnership and Mr. Joseph retired from the firm, taking up his residence in the Kirkmahoe district, where he died. While in business Mr. Joseph B. Service devoted himself to the management of the firm's business at Corberry Nurseries, Maxwelltown, and he was well known for his intimate acquaintance with florists' and other flowers. Of a retiring disposition, Mr. Service did not associate himself with outside affairs except the Volunteer movement. He was in his sixty-ninth year.

ANSWERS TO CORRESPONDENTS.

ADVERTISMENT FOR CANADA: *F. J. H.* We have never received any complaints regarding the people you mention but you should bear in mind that conditions in Canada may suit some emigrants while being objectionable to others.

BLACK SPOT ON ROSES. *R. W. W.* When pruning the Rose trees in the spring care should be taken to remove all diseased shoots: these may be recognised by the blackened, blistered appearance on the new wood. The prunings should be immediately burned. It has been found that the disease may be kept under control by dusting the trees with a mixture composed of ninety parts of flowers of sulphur and ten parts of finely powdered arsenate of lead. The first application should be made about the middle of May and repeated four or five times throughout the growing season at intervals of about a month.

NAMES OF FRUIT: *O. R.* Beauty of Kent. *G. G.* Annie Elizabeth.

CHINKERICHEE: *R. H. W.* The name "Chinkerichee" is applied to both Ornithogalum thyrsoides and O. lacteum. The former species has its flowers arranged in dense racemes, containing from twelve to thirty flowers, triangular in outline and from three to four inches wide. The flowers are white with a brown eye. O. lacteum possesses a longer flower spike with from twenty to fifty flowers, the raceme being about six inches long and two inches wide. Both species have varietal forms and require cool greenhouse treatment in this country. Bulbs may be obtained from any reliable seedsman. O. narbonense is a South European species and possesses flowers marked with green on the back. The name "Chinkerichee" is not usually applied to this species.

DISEASED RHUBARD: *R. H.* The soft rot of the Rhubarb stalks is of bacterial nature and very little can be done to control the disease beyond removing and burning the affected shoots directly they appear. Attention should be paid to the plants out of doors, cutting away all diseased shoots in the spring. When the crowns are lifted for forcing, the soil should be shaken away and all diseased portions removed. The prepared crowns should then be washed and steeped in a 2% solution of formaldehyde (one part 40% formaldehyde to 49 parts of water) for about four hours previous to forcing.

DISEASED FRUIT BRANCHES: *W. R.* The shoots are affected with the canker fungus, Nectria ditissima. The disease is very common and the fungus spores gain an entrance through wounds of every kind, especially those caused by the woolly aphis. All cankered branches should be removed and burned and the cut surfaces dressed with gas tar. The trees should be sprayed now with winter strength lime-sulphur wash, diluting the proprietary article of 1.3 specific gravity, one part to twenty of water.

LARCH AND ASH SEEDS: *J. J. T.* There are approximately 70,000 clean seeds of European and Japanese Larch to the pound. The average germination capacity of the former is about 40% and the latter 27%, giving an average number of seedlings of 28,000 and 19,000 respectively. Of these, 7,000 to 8,000 will be fit for transplanting in the case of the European Larch, and about 6,000 transplantable seedlings should be obtainable from the Japanese Larch plants. A pound of clean Ash seeds will give from 2,500 to 3,000 strong seedlings fit to transplant, the number of seeds to the pound being about 7,000, with an average germinating capacity of 50%.

Communications Received.—H.—W. R. J. S.—H. A. F.—J. A. J.

THE

Gardeners' Chronicle

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.1°.

Actual Temperature:—
Gardeners' Chronicle Office. 5, Tavistock Street, Covent Garden, London, Wednesday, February 6, 10 a.m.: Bar, 30°; temp. 46° Weather—Showery.

Royal Horticultural Society.

The most important announcement in the Annual Report of the Council of the Royal Horticultural Society, which will be presented to the Fellows at the one-hundred-and-twentieth annual general meeting on Tuesday next, is that the Council is considering the building of a new hall. A resolution will be moved from the chair "That this general meeting of the Fellows of the Royal Horticultural Society approves of the policy of the Council with regard to the site for a new hall and authorises it to proceed with the scheme." It is intended to retain the present building and erect another hall twice as large as the present one on land adjacent to and behind the present building, and it will doubtless be a simple matter to obtain access from one building to another by means of a suitable subway. It has long been apparent that the present Hall has become totally inadequate even for the more important of the fortnightly meetings, and it will be a matter of general satisfaction if provision is made in the new hall for accommodating, with a show place and headquarters, the various floral and other horticultural societies and associations which at present have to meet in different parts of the metropolis. A Society with an income of nearly £30,000 from annual subscriptions and with invested funds and assets amounting to over £60,000 should be well able to provide itself with a home adequate to fulfil all its requirements. There need be, we consider, no question of failure, for the Society continues to enjoy a great measure of popularity, seeing that it increased its membership by over one thousand during the past year; on November 15 last the total membership was 19,187. The erection of the new hall should solve the problem of finding a suitable building in which to hold such important shows as those of the National Rose Society, and probably the R.H.S. Autumn exhibition if held in the Society's own building would show a profit instead of a loss—which amounted to over £800 last year—besides affording greater convenience for exhibitors and visitors. The Chelsea exhibition, as usual, resulted in a profit and apparently the takings at the Hall cover the expenses of the fortnightly meetings. The revenue from the letting of the present hall, after deducting expenses, amounted to £3,676 odd, and the larger building might reasonably be expected to bring in even a greater sum, so that the income from this source alone should place the Society in a safe position. Whilst on the question of shows it may be stated that the Council has decided to discontinue the competitive classes for fruits and vegetables at the Holland Park Hall exhibition, and to hold a separate exhibition for fruits and vegetables at Vincent Square on October 7 and 9. The fortnightly meetings in the summer will be continued for two days and, in order to meet the complaints that have been made of exhibitors removing some of the more important exhibits on the first day, special application will have to be sent to the Secretary for permission to remove any plant at 5 p.m. on the first day of a two-days' show. Those interested in horticultural literature will be glad to learn that the Council has added several rare books of horticultural interest to the Lindley Library in the past year and, in order to make the library more accessible to the Fellows, it will remain open until the closing of the shows instead of only until 5 p.m. as heretofore. All will realise that much valuable work of the Society is done by the various committees, and the Report gives notice of one or two innovations with regard to them; the most important of these is the division of the Floral Committee into two sections, one to deal with florists' flowers and the other with trees, shrubs, and species of botanical rather than of garden interest. The Council, moreover, has decided to reduce the numbers of the members of the various committees, and it will be seen that in the committee lists for 1924 many well-known names are missing. Whether this step will reduce the efficiency of the respective committees remains to be seen, but many will consider it a mistake to remove men of expert knowledge and experience, even though they are not able to be present on all occasions, and it might have been better to allow the reduction to have become gradual by the efflux of time. A change of importance in the Council is announced in the retirement of Mr. C. T. Musgrave from the office of Treasurer, and the Council has nominated Sir William Lawrence, Bt., for the office in his stead. Mr. Musgrave will remain a member of the Council, and three vacancies on the Council are to be filled by the election of Lord Lambourne, Mr. George Monro, and Mr. C. G. A. Nix. The appointment of Lord Lambourne as a member of the Council will occasion some surprise, seeing that he holds the office of President, but there are probably good reasons for his election. Of the other new members, Mr. Nix has already had experience of Council work; the election of Mr. George Monro will meet with general approval and by the trade in particular, because of his wide interest in commercial horticulture, and especially in so far as it pertains to Covent Garden Market. Lovers of trees and shrubs will be interested to know that although the proposed Conifer Conference in 1924 has been postponed, it is hoped to arrange the Conference for the autumn of 1925. The special honours at the disposal of the Society—the Victoria Medal of Honour and the Veitch Memorial Medal—will be distributed amongst gentlemen with varying interests in horticulture and we think all will agree that the choice in every case is satisfactory. For the five vacancies for the Victoria Medal of Honour the Council has selected Mr. N. F. Barnes, a worthy representative of the professional gardener; Mr. A. E. Grove and Mr. F. J. Hanbury, both enthusiastic amateurs; Mr. Sydney Morris, another keen amateur, who has enriched our gardens with many fine plants; Mr. T. Hay, who holds one of the most important offices in the public parks service, and Mr. C. E. Pearson, a representative both of the horticultural trade and the horticultural press. Those selected for the Veitch Memorial Medal are Mr. E. A. Bowles, Mr. R. Irwin Lynch, Mr. John Heal- all of whom are to receive the medal in gold; Mr. James O'Brien, Mr. Sydney Morris, Mr. T. G. Hodgson, the veteran chairman of the Council of the York Gala, Mr. W. Dallimore of Kew, and Mr. A. Bruce Jackson, to all of whom the silver medal is awarded. In the section of the Report dealing with Wisley, we learn that much progress has been made in the trial Rose garden, and that large numbers of new Roses have been planted, together with well-known varieties for comparison. The Roses will be open for inspection by Fellows, and judging will commence during the coming summer. The special fruit experiment ground is quite near to the trial Rose garden, and this also will be open for inspection during the coming season. In the scientific work of the garden, Dr. Darbishire has continued his green-manuring experiments; Mr. Rawes has been able to test the validity of the conclusions arrived at on the relation between season and growth after summer pruning and to continue and extend in detail the pollination experiments in which Wisley has been engaged for some years. Mr. Buxton has investigated the development of buds in Currants and Mr. Dowson has also carried out research in several diseases. It is interesting to learn that three eminent men of science have been asked to advise regarding research work at Wisley; urgent problems awaiting elucidation should not be difficult to find. The maintenance of the Wisley Gardens involved an expenditure last year of over £11,000, of which sum nearly £8,000 represented excess of expenditure over revenue.

Mr. F. Kingdon Ward's Eighth Expedition to Asia. On the 2nd inst. Mr. F. Kingdon Ward started upon his eighth plant collecting expedition in Asia. He is accompanied by Lord Cawder who is a student of ethnology. The expedition is expected to occupy a whole year, and will proceed via. Darjeeling, through Sikkim and into Tibet. It is quite probable that Mr. Kingdon Ward and Lord Cawder will be out of touch with civilisation for fully five months. As on previous occasions, Mr. Kingdon Ward will write an account of his travels for *The Gardeners' Chronicle.*

The Flowering Plants of South Africa.—The January issue of this work contains illustrations and descriptions of ten plants. Stapelia flavopurpurea, tab. 121, is said to be a unique species, in having clavate hairs on the disc. The flowers are very handsome, the corona lobes and hairs being coloured rosy-red. They are said to lack the unpleasant smell characteristic of the genus. Ansellia gigantea, tab. 122, is an epiphytic species, with pale lemon-coloured flowers; the plant is not so strikingly beautiful as most Orchids. Pachypodium Saundersii, tab. 123, has succulent, spiny stems, at the end of which the flowers develop in clusters up to eleven. The blooms are tubular, tinged with red in the bud stage and with faint blush on the limbs of the expanded sepals. Aloe verecunda, tab. 124, has a short stem, bearing 8-10 deciduous leaves, and from the centre of the leaf-cluster arises the more or less capitate raceme of bright-red flowers that are marked with green at the apices; the plant flowers in December, when the dark red racemes show conspicuously. Gladiolus Ludwigii, var. calvatus, tab. 125, belongs to the same section as G. Rehmannii. The variety illustrated has pale yellow flowers, and it is said that another form with speckled flowers grows in association with it. The yellow-flowered form was introduced into this country in 1877. Veltheimia Roodeae, tab. 126, has undulate leaves of a different shape to those of other species. The peduncle is reddish and bears a dense spike of tubular, whitish flowers marked with reddish dots. Strumaria truncata, tab. 127, appears to be a desirable subject for cultivation; it is said to be a charming little plant with an umbel of white, sweet-smelling flowers, faintly tinged with pink. The bulb is about 3 c.m. in diameter. Mimetes argentea, tab. 128, is a shrub growing about four feet high, and has, like most members of the Proteaceae, a remarkable inflorescence. The flowers are aggregated in heads and subtended by leafy bracts, faintly marked with rose colour. Polyxena ensifolia, tab. 129, resembles a Scilla, with a corymbose head of pale lilac flowers. It has promise of being a useful addition to the cultivated bulbs of the Scilla type, but nothing is stated as to its degree of hardiness. Habenaria foliosa, tab. 130, is a greenish-yellow flowered Orchid common to a wide area of South Africa, and known by the natives as "Mametsana." It flowers in late summer after the rains.

London Daffodil Show, 1924.—The London Daffodil Show of 1924, held under the auspices of the Royal Horticultural Society, will take place on Tuesday and Wednesday, April 15 and 16, 1924. No fewer than sixty-nine classes have been arranged; some of these are for open competition, and others for market growers, or amateurs only. Copies of the schedule may be obtained from the Secretary, Royal Horticultural Society, Vincent Square, Westminster, S.W.

Sumac.—*The Journal of the Royal Society of Arts* for January 18 gives some interesting details on Sumac, a tanning material obtained from leaves and stems of various species of Rhus. For white or light coloured leathers Sumac is stated to be the best tannage known, and it is largely used in the tanning of moroccos, roans, skivers, glove leathers, &c. Sumac tanned leathers are less liable to decay than those of other tannage and are largely used for bookbinding and other purposes where durability is required. In Europe Sumac is obtained principally from Rhus Coriaria and R. Cotinus. American Sumac is prepared from other species, including R. glabra, R. copallina, and R. hirta, the first named giving White Sumac which is very valuable. As showing the importance of the Sumac industry in the United States, Sumac extract from both native and foreign leaf in 1919 amounted to 4,507,433 pounds, valued at $253,088.

Mr. Malcolm Macnaughton.—A native of Comrie, Mr. Malcolm Macnaughton was trained in the nursery and landscape gardening business under Mr. J. Strachan and Mr. John Downie, Edinburgh. He first entered private service as outside journeyman at Scone Palace gardens, and then became outside foreman at The Glen, Peeblesshire. To gain further experience, he became journeyman in the fruit houses at Mentmore, Buckinghamshire, and afterwards served in a similar capacity in the plant houses at Auchencastle, Dumfriesshire. His next appointment was as foreman at Mellerstain, Berwickshire, at a time when the garden was being remodelled and extended. For a short period he was foreman in the famous gardens of Hopetoun, Linlithgow. In 1916, he received the appointment of gardener to the Earl of Mansfield at Scone Palace, the scene of his earliest experiences in private gardening, and to the important duties attaching to this position has now been added the charge of the garden and grounds at Ardchoille. In 1914, Mr. Macnaughton joined the Black Watch, but in the following year was discharged as incapacitated for war service. Since he has been at Scone, Mr. Macnaughton has had all the vineries renovated and replanted, and under his care the grounds and gardens have now resumed their pre-war condition of excellence. Lawns, Rhododendrons, flowering shrubs, and herbaceous plants are among the prominent features of the place, while the Pinetum and woodlands are noteworthy. These latter, together with the Palace Park, Perth Hunt Race Course, and the private football and cricket grounds come under Mr. Macnaughton's care. Remembering also that he is a Director of the Royal Horticultural Society of Perthshire, a member of the Royal Arboricultural Society, and of the Committee of the Royal Caledonian Horticultural Society, it must be conceded that Mr. Macnaughton's ability is fully recognised and that he is a very busy man.

MR. MALCOLM MACNAUGHTON.

Summer Time.—The summer time period for the present year will commence, as last year, on the third Sunday in April and end on the third Sunday in September. During the month of April Sir Kingsley Wood will bring forward in the House of Commons a Bill for the establishment of a six months period of summer time, the object of the Bill being to establish a fixed and permanent arrangement whereby the six months of "summer time" will be from the first Sunday in April to the first Sunday in October.

Scholarships for Children of Rural Workers.—The scheme instituted two years ago by the Ministry of Agriculture and Fisheries under which scholarships are awarded the sons and daughters of agricultural workers has achieved a considerable amount of success. At present 13 students are taking degree courses in agriculture or an allied subject at Universities; 20 are taking diploma courses at agricultural colleges; and about 70 are attending Farm Institutes, &c., for short courses in agriculture, horticulture, dairying, or poultry-keeping. The value of these scholarships is such that no outlay on the part of parents or scholar is necessary during the tenure of the scholarships.

Graft Hybrids.—That new varieties may result from grafting one species on to another is shown by Mons. Lucien Daniel in an account of his experiments published in the *Comptes rendus* of the Paris Academy of Sciences, p. 1449. By grafting the common Artichoke, Helianthus tuberosus, on the Sunflower, Helianthus annuus, some remarkable results were obtained. The former species flowers very rarely and we doubt if it has ever been known to set seeds in this country. The graft obtained by Mons. Daniel produced flowers which formed seeds and small aerial tubers were also obtained. From the seeds fourteen different plants were produced, some giving an abundance of aerial and few subterranean tubers, others behaving quite the reverse. The tubers themselves differed in weight, form and colour. The results obtained are of importance, as it is clearly a case of the inheritance of a character acquired by grafting, as was first proved in 1908 by Professor Winckler, who used the Black Nightshade, Solanum nigrum, and the Tomato, Solanum lycospersicum. In this case the graft hybrid produced characters of both stock and scion, but no seeds were set, although the fruits resembled those of S. nigrum, but were larger, and some were coloured red and yellow.

Northumberland Potato Trials.—The report on the Northumberland County Potato Trials for 1923 has just been issued. The trials were conducted under the superintendence of Mr. C. W. Mayhew, County Instructor in Horticulture, and five centres were chosen for the experiments, the purposes of which were to demonstrate the cropping powers of new varieties, the advantages of an adequate system of manuring, and the value of using "seed" from healthy stocks. The centres selected were Berwick, medium soil; Bedlington, medium soil; Wylam, light soil; Alnwick, medium soil; and Amble, heavy land. The seventeen varieties tested were as follow:—Immune Ashleaf, Dargill Early, The Ally, Great Scot, Arran Comrade, Majestic, Tinwald Perfection, The Bishop, Crusader, Irish Chieftain, Rhoderic Dhu, and Kerr's Pink representing the immune varieties, and Duke of York (syn. Midlothian Early), British Queen, King Edward, Up-to-Date, and Arran Chief, the non-immune varieties. The standard manurial treatment was farmyard manure at the rate of 16 tons per acre plus superphosphate, sulphate of potash, and sulphate of ammonia at the respective weights of 4½, 1, and 1 cwt. per acre. The cold and relatively dry conditions were entirely unfavorable to the growth of Potatos, and the early varieties gave a very poor yield. The approximate average yields of ware Potatos for each centre were Alnwick, 11 tons 18 cwts.; Amble, 5 tons 0 cwts.; Berwick, 7 tons 2 cwts.; Bellington, 9 tons 2 cwts.; and Wylam, 6 tons 8 cwts. Up-to-date was the heaviest cropping variety, giving an approximate average of 10 tons 4 cwts. per acre for the five centres, followed by Arran Chief with 9 tons 12 cwts.; Great Scot with 9 tons 11 cwt.; Crusader 9 tons 5 cwts.; King Edward with 9 tons 3 cwts.; and Kerr's Pink with 8 tons 17 cwts. Of the early varieties Immune Ashleaf gave an average of 5 tons 12 cwts. per acre; Dargill Early, 5 tons; and Duke fo York, 3 tons 3 cwts. Cooking tests were conducted at three Domestic Science Centres, and the varieties Rhoderic Dhu, Crusader, Kerr's Pink, British Queen, Great Scot, and The Bishop were adjudged the best.

Jubilee of the North of France Horticultural Society. During the present year the North of France Horticultural Society will hold three exhibitions at Lille. The spring exhibition will take place on Wednesday, April 30, to Saturday, May 3rd, in the Central Square. On Sunday, June 22nd, there will be a Rose exhibition at the Rameau Palace. The jubilee of the Society will be celebrated by a great international exhibition of flowers, plants and seasonable produce at the Rameau Palace and in the Palace Gardens, from Friday, September 26, to Tuesday, September 30. This exhibition will be under the patronage of the French Government and His Majesty the King of the Belgians has been invited to attend. Details of the competitive classes and prizes offered may be obtained on application to the President of the Horticultural Society, Palais Rameau, Lille, France.

Appointments for the Ensuing Week.—Monday, February 11: Bath Gardeners' Society meeting; United Horticultural Benefit and Provident Society's meeting; Tuesday, February 12: Royal Horticultural Society's Annual Meeting; Jersey Gardeners' Society's meeting; Royal English Arboricultural Society's meeting (prov.). Wednesday, February 13: East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting; Wimbledon Gardeners' Mutual Improvement Society's meeting. Friday, February 15: St. Neots Chrysanthemum Society's annual meeting; Manchester and North of England Orchid Society's meeting; Eastbourne Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-Five Years Ago.—*Wistaria sinensis*—This is, without exception, the most magnificent and graceful of all hardy climbing shrubs. One of the finest specimens of it in the kingdom is the one in the Horticultural Society's Garden at Chiswick, where at each successive May Exhibition it forms an object of universal admiration. Some have imagined that this handsome oriental shrub cannot be grown except on a wall, but experience has proved that it will succeed wherever a dry subsoil exists, or where there is room for an upright shrub to grow. As far north as York it is found to thrive luxuriantly in the open borders, trained as an upright shrub or round wooden stakes or trellis work, in which positions it flowers profusely. The plants vary from five to eight feet in height. As an instance of their rapid growth, I may state that two groups of two and three plants, each eighteen inches high, were planted almost twelve months ago, and they attained nearly six feet elevation in the year. The habit of the plant being well known, it is unnecessary to mention that it is very suitable for planting against pillars or trellis work, etc., or for forming a component feature in the covering of an arbour. Supported by firm wire work or wooden stakes, it may also be rendered extremely graceful in the most limited flower beds. In very heavy and retentive soils it should be planted in a quantity of artificially prepared gravelly soil on the summit of partially elevated mounds. In order to induce a uniform expansion of bloom, cut back the current year's shoots, either partially at the plant's most luxuriant period of growth, or in autumn to within four or six or more inches of the previous year's joints. Every ripened second or side shoot that springs from the principal growing stems in summer will eventually become blossom-bearing spurs or branches. No arboretum or shrubbery should be without its rural or artistic pillars, around which to wreathe the long, fertile branches of this fine plant. *William Wood, Fishergate Nurseries, York, Gard. Chron. February 19, 1849.*

CULTURAL MEMORANDUM.

CLARKIA ELEGANS.

Clarkia elegans is a very useful plant to grow in pots for spring flowering in the greenhouse, as it blooms just when Schizanthuses are over. Clarkias are, when well grown, unrivalled for the decoration of halls and corridors. The method of cultivation which I have found most successful with this beautiful annual is to sow the seed in 4-inch pots during the first half of September, and to thin the seedlings when they are large enough to handle until about five are left. The seedlings are cut over when a few pairs of leaves have developed, and a few weeks later the leading shoots are again pinched out. When plenty of roots have formed the plants are transferred to 6-inch pots, using a compost that is not too rich, a sprinkling of wood ash and bone-meal being all that is required to be mixed with the soil at this stage. The plants should be grown in a cold frame for so long as the weather permits, and the frame should be ventilated whenever the weather is suitable. Later the plants should be removed to a shelf in a cool greenhouse where they may remain until about the middle of January. At that date they should commence to grow freely. They should soon be ready for their final potting in receptacles nine inches or ten inches in diameter. For this potting a slightly richer compost should be used, therefore in addition to the wood ash and bone-meal add a 4-inch pot full of concentrated fertilizer to each barrow-load of soil.

Crowding the plants will spoil their symmetry of growth; if space is a consideration, it is better to limit the batch to actual requirements, as a small number of plants grown to pefection is far more likely to win approval than a larger batch of plants spoiled by close staging. Of colours, I consider the brighter tones, such as salmon-scarlet, are the most satisfactory under glass. When the final potting is done the plants will require a preliminary staking. Dried stems of Solidago (Golden Rod) are useful for this purpose and need not be removed when the final staking is done. Grow the plants near to the roof-glass for so long as possible and ventilate the house freely.

When the pots become full of roots give the latter a sprinkling of a fertilizer occasionally, and for a few weeks after the flower buds begin to develop, water them twice a week with a solution of sulphate of ammonia, one-third of an ounce of sulphate to each gallon of water. During the winter water the plants with extreme care as they are liable to damp off at the soil level. *C. Hodgson, Acton Place Gardens, Sudbury.*

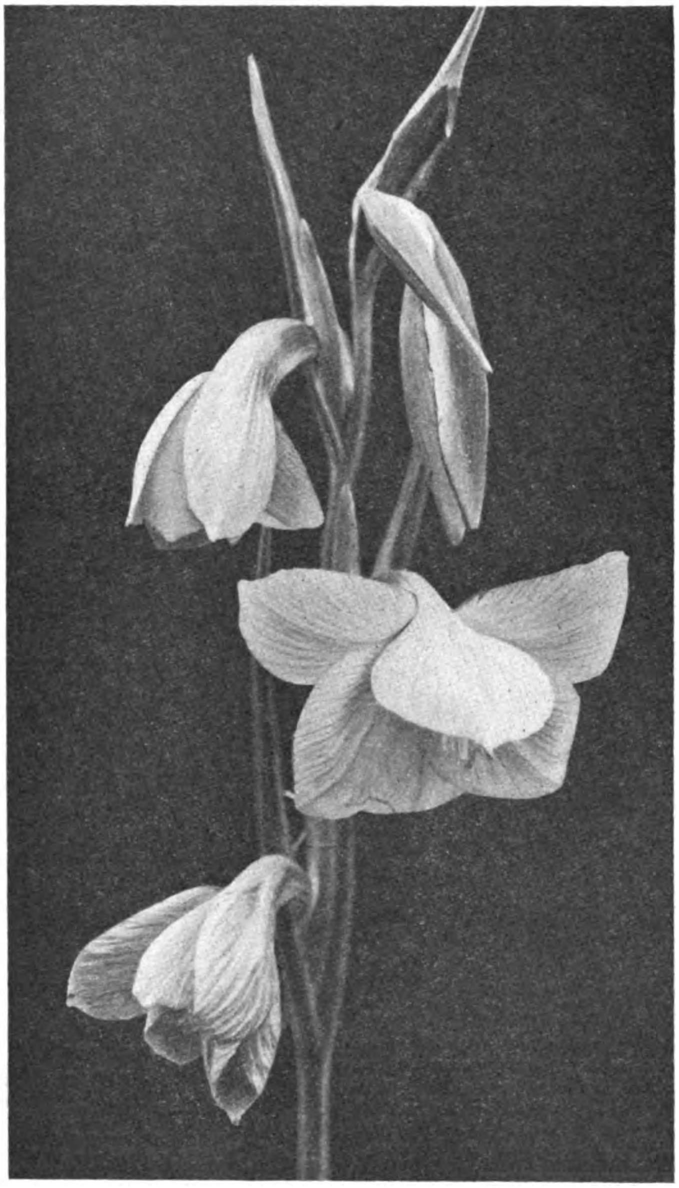

FIG. 29.—GLADIOLUS MELLERI, R.H.S., AWARD OF MERIT, JANUARY 29 (SEE P. 81).

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Cypripedium.—As soon as the flowers are removed from the late autumn and winter-blooming Cypripediums, the plants should be examined and any that require re-potting attended to. If it is not desired to increase the stock, specimens that have become pot-bound should be transferred to larger receptacles. Cypripediums, unlike many other Orchids, benefit by a fair amount of pot-room; better flowers are obtained from plants provided with plenty of rooting material than from those that are pot-bound. The general practice is to prepare a mixture consisting of equal parts of best fibrous loam, good English peat or Osmunda-fibre both broken up rather roughly with all the earthy particles shaken out, some Sphagnum-moss and sufficient crushed crocks added to render the mixture porous. In re-potting, the pots should be filled to one-third their depth with material for drainage, this in turn being covered by a thin layer of coarse soil. The plants, and especially those that are very pot-bound, should be watered copiously a day before being disturbed. After taking the plants from their receptacles, remove the drainage and all decayed soil from among the roots. In re-potting the plants spread out the roots and work the compost well between them, pressing it firmly and filling the pot almost to the rim. Care should be taken not to break the roots. If the soil is already moist these newly-potted plants will not require much water, but will be benefited by light sprayings overhead on one or two occasions during fine days. When the new roots have penetrated into the compost a liberal amount of water should be afforded them. If it is desired to increase the stock of any particular kind, this is best done at the time of re-potting, as it may then be seen how to carry out the operation without cutting through the roots, as on a divided plant every root is valuable. A strong growth that has flowered is preferable for propagating purposes, as it will often produce two or three shoots, whereas a new shoot will complete its growth before starting again. Specimens growing in large pots will be benefited by being re-surfaced with fresh compost; first pick out all the old decayed material from between the roots, and substitute fresh compost. Where special houses are devoted to Cypripediums, the temperature should range from 55° to 60°; with sun-heat it may be allowed to rise 5° or 10°. Seedling Cypripediums should be grown in a higher temperature and potted on as they require it. Thrips are very injurious in attacking the young leaves of these plants. The insects should be destroyed by frequent fumigations.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Begonias.—Tuberous-rooted Begonias which have been stored in a dry condition during the winter should be placed in shallow boxes of leaf mould in a warm house. If increased stock is needed the large tubers may be divided so soon as growth begins, dipping the cut surfaces in powdered lime. When growth becomes active they may be planted in frames on a partially spent hot-bed in a light compost consisting chiefly of a good quality leaf-mould.

Bulbous Anemones and Ranunculi.—These bulbous plants may still be planted for successional flowering. They grow best in light, well-drained soils; heavy soils should receive a liberal addition of light gritty material. Should frost occur after planting, protection may be afforded by mulching them with leaf-mould.

Lily of the Valley.—These delightful May-flowering plants frequently resent interference, but beds of several years standing will need replanting. The soil should be well enriched with short manure during the process, and the crowns replanted three or four inches apart.

Zephyranthes candida.—The bulbs of this Zephyranthes may be planted now about three inches apart. It produces dark green leaves and in August and September a profusion of white flowers much resembling those of the Crocus. The plant succeeds in a half shady position, and is suitable for the edge of a shady border where it may be left undisturbed for a number of years.

Liliums.—Imported bulbs, and those which have been lifted and stored, of L. auratum, L. speciosum, L. Henryi, L. longiflorum, etc., may now be planted in well-chosen positions. If the soil is heavy in texture liberal quantities of peat, leaf-mould and sand should be added. Deep planting should be practised to enable the secondary rooting system, which is formed at the base of the stems, to fulfill its part in the building up and nourishing the flowering stems. Positions should be chosen for these Lilies that are not exposed to cold winds and gales, and it is very advantageous to plant them amongst low-growing shrubs or Ferns which help to maintain a cool rooting-medium while giving full freedom to the flowering stems. The Martagon group and all those which develop roots from the base of the bulb only should, naturally, not be disturbed now, but replanted immediately after flowering before fresh root action commences.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Cherries.—If ripe Cherries are required early the house in which the trees are grown should, provided it has been cleansed thoroughly, now be closed. If the trees are infested with insect pests they should be washed with a nicotine specific before tying the branches in position. Trees showing signs of ill health may, in many cases, be brought into a healthy condition by partially lifting the roots and notching with a sharp knife thick roots that are devoid of fibres, keeping the incision open by inserting a small crock in it. After this has been done arrange the roots near the surface in good loam mixed with a liberal amount of old mortar rubble, some charcoal and coarse bone-meal. The night temperature of the house during frosty weather should not exceed 40°, allowing a rise of 10° to 15° by day. Cherries resent hard forcing, and until the flowering stage is reached a somewhat low temperature should be provided. As growth advances the temperature may be increased gradually. Cherries planted out in borders should be well supplied with water and the trees sprayed overhead whenever the weather is favourable for this to be done, but syringing should be discontinued during the flowering period. Trees growing in pots should be examined at the roots to see that the drainage is perfect. The surface soil of trees that were potted last autumn should be stirred with a pointed stick.

Cucumbers.—Seedling Cucumbers raised from seeds sown during the first week in January are growing freely, and preparations should be made for planting them in the house. Where plenty of bottom heat is available from water pipes there is no need to prepare a hot-bed of leaves. If a hot-bed is necessary it should be made of one part stable manure and three parts Oak or Beech leaves. These materials should be well mixed by turning them on two or three occasions before making the bed. The soil may consist of two parts loam, one part manure from an old Mushroom bed, and one part leaf-mould. Place the soil in mounds, about 4 feet apart, and when it has become warmed to the temperature of the house, planting may be proceeded with. Promote a humid atmosphere by damping the bare surfaces of the house and maintain a mean temperature of 65° at night.

PLANTS UNDER GLASS.

By F. J. Clark, Gardener to Lt.-Col. Sir George Holford, Westonbirt, Tetbury, Gloucestershire.

Clerodendron fallax.—This is one of the most attractive and useful of flowering stove plants and may easily be had in flower during either summer, autumn or winter. Seeds sown at this time should provide good plants suitable for room decoration next autumn, and they may be flowered before that time if necessary. A similar compost to that advised for Gloxinia, but not so finely sifted, will be suitable. The seeds should be placed singly, about one inch apart, and should be covered to about their own depth. Place the pans over a strong bottom heat in a house having a temperature of about 70°. The best results, however, are obtained at the second flowering of this plant. Specimens which were flowered in 6-inch pots last autumn and have been partly rested during the winter should now be ready for transference into 8-inch pots. The plants require a compost of loam and peat in equal parts, with the addition of a little bone-meal, charcoal and sand. This plant thrives in heat and moisture up to the flowering stage, and if afforded a position in a Cucumber house and fed liberally, after the pots have become well filled with roots, it may be had in flower in May. Each plant bears several panicles of its lovely scarlet flowers, and will continue flowering for three or four months.

Liliums.—Bulbs of Lilium speciosum, L. auratum, L. tigrinum, L. Fortunei, etc., should be unpacked without delay as they are received from the nurseryman, and if it is not convenient to pot them at once, placed in shallow boxes filled with leaf-mould. Take the first opportunity to pot them in a compost of loam and peat (the proportion of peat to be governed by the texture and quality of the loam used), adding some finely crushed charcoal and sharp sand. Pots in which the bulbs are intended to flower should be used, and should be carefully though not abundantly crocked. The bulbs should be placed low in the pots, pressing the soil firmly around them with the fingers, or by using the thin end only of the potting stick, barely covering them with soil, thus leaving room in the pots for periodical top-dressings of richer material. When potted they should be placed in a cold frame, which should be kept darkened until the growth develops. Before potting them examine the bulbs carefully for fungus. A little powdered charcoal dusted amongst the scales of the bulbs and rubbed into any decayed part will be beneficial.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Pruning Gooseberries.—The work of pruning Gooseberry bushes may now be commenced: it is not advisable to undertake this work too early as birds are very partial to the buds in hard weather. Where the growth has become excessively thick some of the branches should be removed from the centre of the plants to allow the hand to be passed between those that are left. Shorten all side shoots to one or two buds, and also any suckers arising from the base of the bush, except where they are required to fill vacant spaces. Always prune to a bud pointing outwards to ensure that the subsequent growth does not become congested. Varieties of pendulous growth should have the bottom branches removed as the bushes become larger, otherwise the fruit will become splashed with soil during heavy rains. Unless a special variety is desired, those of upright growth are the best to cultivate, as the berries may be gathered with ease, and are less liable to become soiled. If birds are troublesome after pruning the bushes, spray the latter with a thin mixture of lime and soot, or stretch black cotton over them.

Gooseberry Mildew.—Owing to strigent regulations this disease has become somewhat checked. It is most noticeable when the bushes are in full growth, but its presence may be detected when pruning. It develops mostly on the young wood, and especially on the tips, forming brownish-white patches. Infested shoots should be cut out and burnt. Afterwards remove the soil under the bushes to the depth of about an inch, and bury it in another part of the garden, first throwing plenty of fresh lime over it. Sprinkle the ground also around the bushes with powdered lime, and fork it in, then substitute fresh soil to take the place of that removed.

The Fruit Room.—All fruit in store should be periodically examined, and any bad specimens removed. Admit plenty of fresh air by opening the ventilators on all favourable days, but do not allow the fruit store to become excessively dry. A fruit room with an earthen floor is best, as the natural damp arising from the soil will keep the fruit plump, especially Apples. Where possible, all fruit should be laid out singly. Pears require very careful handling at this season, and should be laid on soft wood wool.

THE KITCHEN GARDEN.

By Walter Y. Staward, Gardener to Mrs. John Feeney.
The Moat, Berkswell, Warwickshire.

Seakale.—To provide a continuous supply of Seakale a batch of roots should be introduced to a warm house or pit every two weeks, and the plants should be placed either in boxes or large pots. Keep the roots moist and syringe them morning and evening. A temperature of 55° to 60° will be suitable; a higher temperature would cause the shoots to be thin and weak. Seakale pots, or even boxes, may be placed over strong crowns in the open with plenty of littery material about the pots. In this way fine heads may be forced. Crowns grown from seed sown last year may be lifted and replanted to afford the plants more room during the coming season.

Potatos.—Seed Potatos should be set up in boxes for sprouting and the boxes placed in a little warmth. Another batch should be planted in frames for successional cropping. Early Potatos growing in pots will require attention: place more soil over the roots, mixing a quick-acting artificial with the compost used as a top-dressing.

Tomatos.—Sow seeds to raise plants for cropping out-of-doors, and germinate them in heat. As soon as the seedlings are large enough to handle prick them off into 3-inch pots and place near the roof-glass on a shelf in a glass house. When they have grown about four inches high place the plants in a cooler house and gradually harden them, finally placing them in a cool frame. Admit plenty of air, and as the weather becomes warmer remove the lights entirely to ensure strong, sturdy plants for the purpose. If the soil in which the seedlings are transplanted is moderately moist the plants will not require watering for a week or more.

Peas.—Ground intended for cropping with Peas should be trenched thoroughly and enriched with a moderate amount of well-decayed manure. The dung should be placed in the bottom spit, and a fair sprinkling of ¼-inch bones applied to the soil: if soot is available a liberal amount of this may also be applied. Manure from a spent Mushroom bed, leaf-mould, old potting soil, and wood-ash are also valuable fertilisers for Peas, and these materials should be incorporated with the top soil.

HARDY FLOWER BORDER.

MICHAELMAS DAISIES FOR CUTTING.

Nearly every variety of Michaelmas Daisy is suitable for cutting, but there are some which seem to lend themselves for indoor decoration better than others. Although there are exceptions, in my opinion Michaelmas Daisies look best by themselves. There are enough shades of colour and quite sufficient different forms and sizes of flowers to make most attractive combinations in a single vase if the more severe simplicity of one variety only is departed from. In the gardens of certain readers there will not be much room for choice, and the decoration of the border at a time when flowers are becoming scarcer will have to be the first, if not the only consideration. It must be Hobson's choice with them. If I state my ideal, readers will know the sort of arrangement to aim at, and will be able to modify it to suit themselves. It is to have a part of the kitchen garden, or part of some other rather out-of-the-way place set apart for a few plants to be used for cutting.

After frosts that destroy the Dahlias, and wind and rain that make the Chrysanthemums look very sorry for themselves, the Michaelmas Daisies go on in the most unconcerned manner possible. I like best of all a small variety like Photograph or Diana or any of the cordifolius family, with a Novi-Belgii like the King of the Belgians or the newer Lavender. Later on, when the virgin glory of the cordifolius varieties has gone, a diffusus form or any of the very light and airy-looking varieties, with flowers like fairy Daisies might be used as foils to Climax or Blue Gem, which also are late. Personally I am not at all pleased with the tiny vimineus type, like Maidenhood or Milky Way, for mixing with others, and think that when they are used it should be by themselves.

After all it is largely a matter of individual taste; may I, however, recommend the following for using where one variety only in a vase is preferred? Louvain, pink, rather late; Pink Perfection, really rose coloured, with smallish flowers, midseason; Climax, deep blue-mauve, and Gladys Donellan, pale heliotrope, both late but very beautiful; Edith Goodman, mauve, early and very free; Edwin Beckett, mid-season, light looking and very graceful, very pale mauve; Teddy Lloyd, very free, pale rose; Bee's Pink, pale pink with very narrow petals, early; Bianca, very free, a white diffusus variety with Daisy-like flowers; Belgian Queen, deep heliotrope, very late; although the flowers are rather crowded at the ends of the branches they look well in a vase; Roddy, a gem for small vases, something like Esther, with the same spidery leaves and petals, but much more rosy; and Feltham Blue, one of the oldest but most attractive on account of the deep blue-purple of its petals and the rich yellow of its central boss, very early.

There are of course double and semi-double varieties, but most will agree I think that for cut flowers, when we see everything at close quarters, the beautiful and natural yellow centres contributes at least half of the charm of a cut Michaelmas Daisy. *Joseph Jacob.*

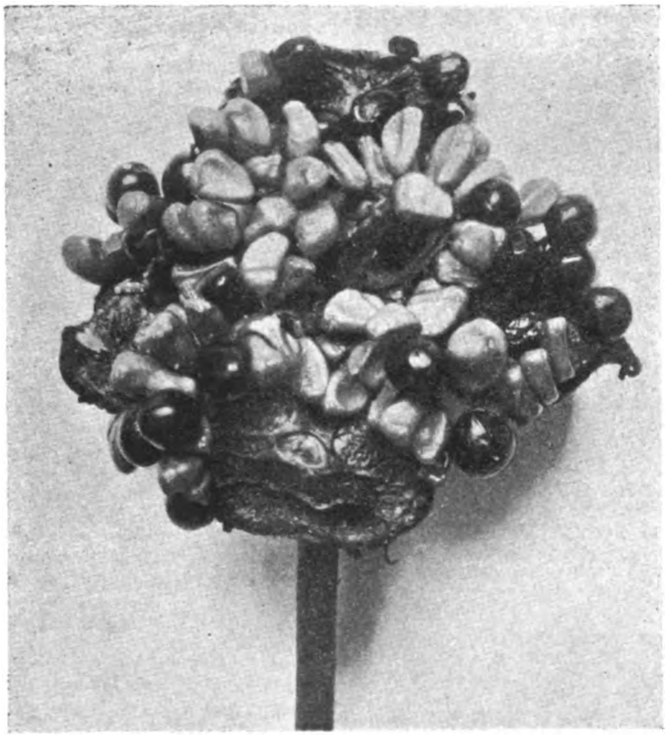

FIG. 30. FRUIT AND SEEDS OF PAEONIA OFFICINALIS.

FRUIT AND SEEDS OF THE PAEONY.

Last autumn Mr. J. Nibbs of Frimhurst Gardens, Frimley Green, sent an opened fruit of a single-flowered Paeony gathered from a neighbouring garden. The specimen (Fig. 30) remained on a desk in the *Gard. Chron.* Editorial office for several months and excited the curiosity and admiration of numerous visitors. The four valves of the fruit had spread out showing the brilliant red interior consisting of numerous light, unfertile seeds, with a few glistening black and apparently fertile seeds among them. The ornamental value of the fruit and seeds was very great, while their lasting qualities compare favourably with many so called "everlasting" flowers and fruits. The fruit and seeds were those of a variety of Paeonia officinalis.

Those who grow Paeonies extensively should examine their plants in the late autumn with a view to securing some to these pretty capsules which furnish decorative material that lasts for a very long time.

NOTICES OF BOOKS.

Successful Spraying.*

The author of this book has already given us in his work on *Insect Pests and Fungus Diseases* a very admirable treatise on plant diseases in general, and we welcome the appearance from the same writer of a book dealing in detail with the subject of spraying. It is a very easy matter to tell a grower to spray with this or that in order to free a plant of some disease or pest, but he needs advising as to how to diagnose a trouble and the right methods of combat. The author aims at giving such information in clear, understandable language and embodies practical details of up-to-date, safe and efficient measures, and adds descriptions of the more serious diseases and pests of hardy fruits.

Insect pests are divided into the two main groups—sap feeders and leaf eaters—and the necessity of thoroughly wetting the former with a contact spray is urgent. Derris root and nicotine, in their many forms, are the chief contact insecticides, but the former is gaining favour over nicotine in that it is deadly both to sap-feeding and leaf-eating insects, and, being non-poisonous to human beings, crops of fruit and vegetables may be sprayed with safety, even within a day or two of their being ready for consumption.

Stomach poisons are employed to control the leaf-eaters, and arsenate of lead—which must be of good quality and applied in a fine state of suspension through the fine spray nozzle—is the chief insecticide recommended for dealing with this type of insect pest.

The author devotes a chapter to the chemistry of spraying, and we are glad to see that he does not advocate the home-making of lime-sulphur wash. Indeed, reputable horticultural manufacturing chemists pay so much care and attention to making their preparations that, unless a fungicide or insecticide is of the simplest formula, it is generally advisable for the grower to buy the article in a ready-made, concentrated form.

The method of dealing with subterranean pests also receives attention, and included amongst these the "Strawberry" eelworm is noted; the author's observation on this disease are not in accordance with those obtained by recent research workers on this pest, for he says that "no marked symptoms of the attack appear," and that "when an attack is suspected one of the main rootlets should be broken open and the interior examined with a hand magnifier, when the 'worms' are easily recognised." The "Strawberry" eelworm does not attack the roots, and plants exhibit definite symptoms according to the extent of the infection.

Chapters are also given on fungous diseases, insecticides and fungicides, up-to-date spraying, and fumigation. There is also a short description of the principal diseases and pests classified according to the particular fruit trees they damage, together with a brief note as to the remedies to be applied.

The work is freely and well illustrated, and the printing and general appearance of the publication are admirable. We should have liked to have seen some information included as to the cost of spraying operations. True, a keen and experienced grower knows within a gallon or two how much spray-fluid per acre is required to spray, say a six-year-old Apple orchard—whether in leaf or leafless—the labour required, the cost of materials, the time taken for the several operations, etc., and incidentally he arrives at the cost per tree. The novice, on the other hand, needs guidance on these matters, and could he be shown in pounds, shillings and pence that spraying is economical and just as important as the cultural measures he adopts, then, we venture to think that British-grown fruit will defy competition no matter from where it comes.

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* *Successful Spraying:* By Percival J. Fryer, F.C.S. F.I.C. pp. 154. Price 7s. 6d. net. Ernest Benn, Ltd., 1923

ANNUAL FLOWERS FOR POT CULTURE.

Annuals, hardy and half-hardy, and those tender kinds needing stove or greenhouse treatment play a very important part in the furnishing of plant houses. Most of them are accommodating, and by sowing seeds at different times a display of flowers may be maintained over a long period.

The successful cultivation of annuals in pots calls for a good deal of skill, for their life cycle is so short that any check received during the growing period seriously affects the ultimate results. A few essentials for their successful cultivation are thin sowing and pricking off the young seedlings before they become crowded, remembering that seedling annuals are very subject to "damping off."

The hardier sorts should be grown in quite cool conditions, in a light airy greenhouse; the more tender species require a higher temperature. In all cases water should be supplied to the roots in a very careful and considered manner, while timely support with neat stakes or twigs as and when required is a matter of importance.

A favourite time for sowing hardy annuals for pot culture is about the middle of September. Raised at this period the plants usually flower during April and May, but by making successional sowings annuals may be had in flower until late autumn.

MIGNONETTE.

Mignonette (Reseda odorata) is such a general favourite that every effort should be made to maintain a supply of it over so long a period as possible. But Mignonette sown in pots must be regarded as one of the "difficult" subjects. Fine specimens are seldom seen in private gardens, although growers for market usually produce it in perfect condition. Most private growers appear to fail because they use a too light and loose compost. Lime is also very essential for the successful cultivation of Mignonette, and where it can be procured old mortar rubble may very well take the place of sand in lightening the soil. A good medium loam provides the best potting compost. I do not advise the use of leaf-soil in the potting compost but would add sand or mortar rubble to keep it porous. Sound pots must be used, as the soil should be rammed very firmly; 48 sized pots are large enough for general purposes; if larger specimens are required six-inch pots may be used.

As Mignonette transplants rather badly, the seed should be sown directly into the flowering pots, afterwards thinning the seedlings to either one, three or four in each pot. When one plant only is retained, it should be pinched once to promote a bushy habit: when four plants are retained, they may be grown in the larger sized pots suggested above. The seed pots should be placed in a cold frame or cool greenhouse, and kept shaded until germination takes place.

There are many good varieties of Mignonette, but for pot culture a good strain of Machet is about the best.

It is generally supposed that it is impossible to transplant Mignonette seedlings successfully, but this is not so, as has been proved by skilled cultivators, and careful transplanting has the effect of inducing the plants to break freely from the base. Again, Mignonette is generally regarded, and treated, as an annual, whereas plants may be kept for two or three years. Thirty years ago it was not uncommon to see plants grown as small standards. For this method of cultivation seeds were sown in 60-sized pots; one strong seedling was retained and all lateral shoots were removed as they appeared until the centre growth (tied to a neat stake) had reached a height of twelve or fifteen inches, when the growing point was pinched out. The subsequent lateral shoots were afterwards pinched to induce the formation of a branching head. The plants were potted on as they required it, and generally not allowed to flower until the second year. Needless to say the cultivation of Mignonette in this way called for considerable care and skill on the part of the cultivator.

Where a successional supply of pot grown Mignonette is required several sowings should be made. A sowing made about the middle of August should provide plants to flower early in the New Year. Another sowing about the end of September should afford a good succession; one or more sowings early in the New Year will keep up the display until the outdoor supply comes in, while a sowing made about the middle of July will provide for a display during the autumn.

Mignonette, in common with all hardy annuals, should be grown quite cool in a light, airy house, only sufficient fire heat being used to maintain a buoyant atmosphere and to keep out frost.

When the pots are well filled with roots give the plants liquid stimulants.

LOBELIAS.

Lobelias of the Erinus section, in various shades of blue and white, have always been popular for conservatory and greenhouse decoration, being largely used for furnishing the front edges of the stages. Although really perennial they may be regarded as annuals, as good strains usually come true from seed. Where required for special purposes, it is, of course, wise to propagate by means of cuttings taken from selected plants. Seeds should be sown during February or March, and as they are very small, soil in the seed pots should be watered some hours previous to sowing; cover the seed with the merest dusting of sand. If a piece of glass and some shading is placed over the seed pots, no further watering should be necessary until germination takes place. The tiny seedlings should be pricked off in small tufts and when a little larger they may be readily separated. Their subsequent cultivation is quite easy, as they grow freely in any good potting compost,; 48-sized pots are large enough for flowering them in. There are several trailing varieties which are very useful for furnishing small baskets and for draping the front of the stages.

L. tenuior, a fine annual species, grows from twelve to eighteen inches in height, and has very large cobalt-blue flowers with a white eye. It is surprising that this beautiful plant is not more generally cultivated. Seeds should be sown in the same way as advised for the L. Erinus varieties, and when large enough four seedlings should be placed in a 48-sized pot, in which receptacles useful specimens may be grown, but if very fine specimens are desired each clump of four plants should be transferred to a six-inch pot, and they should be pinched once or twice to cause a bushy habit. The slender growths need some support and this may be provided by slender twigs of Hazel.

The first sowing of seeds should be made during January, while successional sowings, according to requirements, will maintain a display until late autumn. *J. C.*

BRUCKENTHALIA SPICULIFOLIA.

This little plant is suitable for associating with dwarf Heaths, or for using as a carpeting for any of the taller, thin-habited Ericaceous shrubs. Although a native of Asia Minor and other parts of the East it is quite hardy, very amenable to culture in any ordinary free loam in which Heathers flourish, and by no means difficult to establish.

B. spiculifolia forms low-spreading cushions of closely-set evergreen foliage, the leafage being soft and fine and of a rich green. The flowers appear clustered in terminal spikes about midsummer, and these, differing from those of the Ericas in having open-mouthed corollas, are a pale-blush pink. *J.*

ALPINE GARDEN.

SAXIFRAGA BURSERIANA.

MY excuse for writing about this well-proved and indispensable alpine, the standard Saxifrage of the Kabschia type, is that some readers may require to be reminded of its existence and also of the fact that it has numerous forms, differing in size and even in garden value, and to bring these home to the reader. Their cultivation is all much alike and presents no great degree of difficulty provided certain points are kept in view and are made the basis upon which the plants are treated. This Saxifrage is a lime-lover, and should always have a certain provision made for its likings in this respect. It needs also a free soil and ample drainage, for although it will withstand much drought, water should be supplied to the plant in excessively dry weather. One authority recommends as the best compost, one part of loam, one of old mortar rubbish and one of peat, leaf-mould, and sand. He does not, however, state that this compost is necessary, and points out that S. burseriana has been a success where it has been grown in soil without these materials. In the compost recommended, with plenty of drainage and abundance of sunshine, no difficulty should be experienced in growing S. burseriana into big tufts developing plenty of flowers. It resents dense shade, and though it needs a little protection from the hot sun of summer, it will flourish in our climate without even the shadow of a rock or boulder. I have grown and flowered the plant well in a moraine of whinstone chips, sand, mortar rubbish, and a little loam, giving it plenty of clear water in very dry weather—a consideration many alpines in the moraine enjoy.

Many have succeeded with S. burseriana without any special cultivation beyond that given to their other alpines, but it should be remembered, as already indicated, that it is a lime-lover, and a plant peculiar to the limestone regions of its native habitats on the Alps.

The type—the original S. burseriana—is a charming plant (see Fig. 31). It has tufts of spiny, glaucous leaves, surmounted by short stems of a pretty red hue, on each of which is supported one single white flower, which opens in February or March. It is a good plant, not to be despised, but certainly inferior to some of its varieties, which are mainly geographical forms.

Probably the best of the forms which have been commonly recognised is S. burseriana tridentina, from the Trentino, often erroneously named tridentata. It is superior to the type by reason of its larger and finer tufts of foliage, its fine red stems, and more numerous, larger white flowers of greater substance. It is said that it is from this form that two exceedingly fine varieties have emanated. These are S. b. Gloria and S. b. Magna, both of which are very lovely and sometimes produce more than one flower on a stem, though this is a doubtful quality. The former, sent out from the Craven Nursery a few years ago, is taller than S. b. tridentina, has a more greenish stem and is exceedingly free in bloom. It is one of the finest of all. S. b. Magna, although of surpassing charm where it does well, is more difficult, and varies much in different gardens. It has splendid, large, white flowers, and one feature where it scores in comparison with S. b. Gloria is the possession of a markedly red stem.

Other good burseriana forms include the lovely S. b. speciosa, the grand S. b. major, and S. b. crenata, as being all good, especially S. b. speciosa, whose masses of tightly compressed, glaucous, spiny leaves are surmounted by stems of special brilliance and bearing lovely flowers. S. b. minor, the higher mountain form of S. burseriana, is approved of by many as the dwarfest, yet as having wonderfully large blooms for such a tiny plant. Were one to be limited to, say three forms one would be inclined to select S. b. speciosa, S. b. Gloria, and S. b. tridentina as satisfactory representations of this charming species. *S. Arnott.*

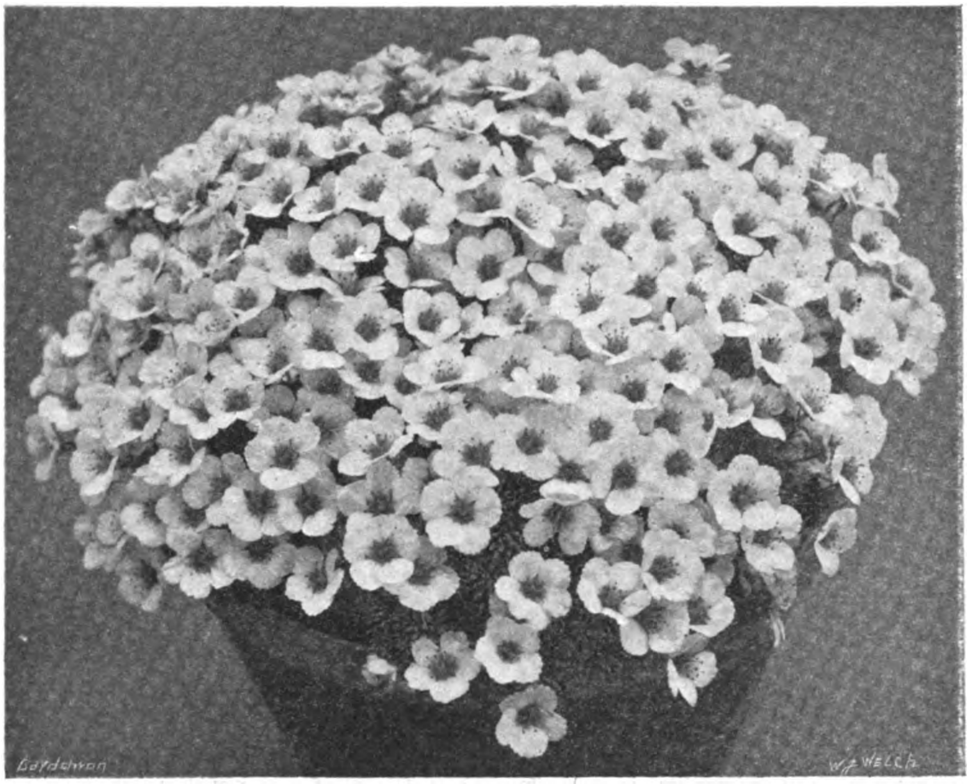

FIG. 31.—SAXIFRAGA BURSERIANA.

THE ROSE GARDEN.

THE BEST BEDDING RED ROSE.

I WAS very interested in the article by *J.P.* on "The Best Bedding Red Rose" (see pp. 51, 52). For many years, without any question, General McArthur was our finest red bedding variety. It was a Rose which did well in the majority of gardens; it flowered in fair profusion, and it carried a most delicious fragrance. These qualities commended it to rosarians, and it may safely be stated that it found its way into every garden where Roses were grown. At the time of its introduction its only rival was Richmond. The latter was displaced in popular favour by General McArthur, but although both varieties were sent out almost simultaneously it took a long time to discover that, for garden purposes at least, General McArthur was the better of the two. Richmond took precedence for a time for the simple reason that it was a success under glass, and was seen and admired in every flower show. Rose growing under glass, however, is not Rose growing in the open, and indeed few, very few, of the good indoor varieties are of any use in the garden.

As a matter of fact General McArthur is one of the few American Roses that are of value for outdoor cultivation in British gardens. Hadley is a beautiful variety and, to my mind, has one of the most perfect flowers obtainable, but it is hopeless and altogether unreliable in the garden. Full exposure to sun renders the blooms almost blue in tone. The same may be said of Hoosier Beauty. We must never forget the fact that most of the American raisers are working for the production of Roses that are suitable for cultivation under glass. Such Roses are wanted for a totally different state of affairs than that which obtains here. It takes a really good Rose to withstand the vagaries of the British climate.

Mrs. E. Powell, which, by the way, is commended by Mr. H. R. Darlington, is a splendid variety. It is too little known by the average grower. *J. P.* makes no mention of the merits of Colonel Oswald Fitzgerald. I am inclined to put this down at present as our best crimson outdoor Hybrid Tea Rose. It lacks fragrance, but that is its only fault. If the merit of perfume is excepted—and this may be forgiven on account of its other excellences—it will hold its own with any other outdoor variety. Etoile de Hollande is its only rival. Both are very similar, but the Dutch variety is very sweetly perfumed. Despite this I prefer the Irish Rose. It has a refinement which seems to be wanting in Etoile de Hollande. Nevertheless, both are splendid sorts, and they should not have been omitted from an article on "The Best Bedding Red Rose." In this respect, too, what of Mrs. C. F. Van Rossem? This is, indeed, a charming little Rose. It is a more double edition of Red Letter Day and is fragrant.

There are many new crimson Roses but I would not readily displace General McArthur, Etoile de Hollande, and William C. Gaunt in favour of any of them. I expected great things from the variety Courtney Page, but have been sadly disappointed. The most promising newcomer that I have yet seen is Fred Harrison, which was shown for the first time last year at Saltaire. This fine dark crimson Rose was noted there for its wonderful fragrance. If it proves to be a good bedding and decorative variety its fame is assured.

In the dwarf Polyantha section *J. P.* omits to mention Eblouissant. This was sent out by M. Turbat, of Orleans, in 1918. The name is against it, but I have translated this and always refer to it as Resplendence. Surely this is by far the finest of all the, so-called, dwarf Polyanthas. I write "so-called" because this type is changing very fast and we are rapidly getting away from it. This is evidenced by many of the new sorts that are now listed in this section. Resplendence, or, if you will, Eblouissant, is an example. It is more like a China variety in character, and I suspect there is a good deal of Cramoisie Superieur blood in it. The colour is a brilliant velvety-red, and the flowers are of good size and shape. It is a pretty little Rose and very floriferous *George M. Taylor, Edinburgh.*

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LOSS OF FRAGRANCE IN THE MUSK PLANT.

How long the disappearance of fragrance in this once popular flower (Mimulus moschatus) has been going on is uncertain, but the first reference to it in the *Gardeners' Chronicle* was an enquiry from Mr. T. Smith, the well-known nurseryman of Newry, in 1909 (Vol. xlv., p. 267). Since that date a good deal of attention has been directed to the subject, and as late as January 8, Mr. R. W. Ascroft, of the Royal Horticultural Society, has sent his views of the subject to the *Morning Post*. He states that only from two correspondents has he received definite statements that the writers possess plants which still retain the old fragrance. I have also learned from one correspondent of mine, that he still possesses a fragrant plant of Mimulus moschatus, and he has promised to send me a piece of it when it appears above ground.

The original plant, found by Douglas, was described in 1825 in the *Botanical Register*, tab. 1118. The name moschatus would obviously not have been given to it unless the plant sent home by him possessed a musky odour. The plant is described by Lindley as having been found growing sparingly on the margins of springs in the country about the River Columbia in British Columbia, N.W. America, but no mention is made by Douglas (see *Journal Royal Horticultural Society*, March, 1914) of the exact locality or conditions under which he found the plant.

It is recommended in the *Botanical Register* that "to be cultivated in perfection it should be planted in peat soil in a shady border." But it is certain that the musky odour is freely developed when grown in pots in a sunny window in cottages. The curious fact emerges on enquiry that the Mimulus moschatus is mostly without odour in the wild state in British Columbia, or plants occur rarely, here and there, in which a faint, musky odour may, with difficulty, be recognised. Douglas himself noticed that the musk odour is apparently not characteristic in plants at the coast (Ascroft). Mr. Denys Nelson of the Pharmacy of the General Hospital, Vancouver, has taken considerable trouble to find out if seed of the fragrant Musk is obtainable from the wild plant. I learn from him that Professor Davidson of the University of British Columbia, who sent seed to Kew in 1916, has not heard if they produced scented plants, which he certainly would have done, if it had.

Mr. J. W. Winson, of the *Daily Province* newspaper, complains that the scented plant is not to be obtained in British Columbia.

Messrs. Brand, florists, of Vancouver, state quite decidedly that the scented plant cannot be obtained there, and suggest that the Musk plant was probably a native of China! (probably confusing musk odour and the Musk plant). Mr. Nelson wrote to Shanghai, but Mr. D. MacGregor, the Superintendent of the Parks Department there, stated that the only species of Mimulus known in China are Mimulus nepalensis, Benth., and M. tenellus, Nutt., and that the only possible reason for assuming that the plant is of Chinese origin is that the musk scent of animal origin is nearly all obtained from China!

Mr. Brown, florist, of Vancouver, told Mr. Nelson that he had received a quantity of the scented plant, but that it came to him indirectly from Messrs. Cannell of "Hednesford" (Eynsford?), Kent, England! Similarly enquiry made in California showed that the seedsmen of Los Angeles obtained the seed of the scented Musk plant from Europe! Although Mimulus moschatus grows wild in the Sierra Nevada in Southern California, fragrant wild plants are not obtainable there. It would appear, therefore, that the plant found by Douglas was a scented variety of the plant, occurring under environment or conditions not noticed by him, and that all the plants in cultivation must have proceeded, like the Irish Yew (Taxus fastigiata) from one original parent. But the conditions under which the plant keeps or loses its odour open up problems concerning the quantity and variation in constituents that occur in the essential oils of well-known plants, such as Peppermint and Lavender.

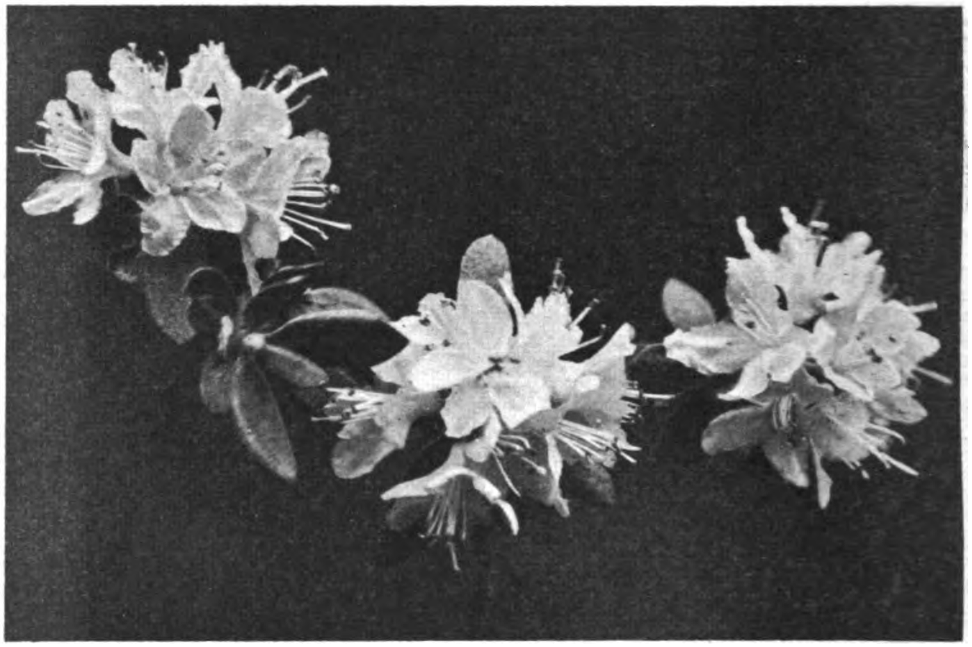


FIG. 32.—RHODODENDRON SCINTILLANS: R.H.S. AWARD OF MERIT, JANUARY 29 (SEE P. 69).

In New Zealand, according to Mr. W. Ascroft (*Morning Post*, January 8) the Musk plant has also lost its odour.

It remains, therefore, to try and ascertain the conditions under which the scented variety has been and can be again propagated. One of the reasons why the fragrant plant has almost disappeared seems to have been the introduction of a robust hybrid form of it in 1877 by Messrs. Harrison & Sons, of Leicester, suitable for bedding.

Mr. J. Harrison (January 7, 1924) wrote to my friend, Mr. R. F. Stroud of Leicester, "Harrison's Musk was a hybrid raised by a friend of mine who crossed the old-fashioned Musk with the spotted Mimulus, but I could never find a seed-pod, therefore I put it down as a 'mule' condition, but never closely examined the internal organs of the flower to see what the real defect was. It has never been noticed to have any Musk scent with it. I cannot give any opinion why the old-fashioned Musk has lost its scent. Although I introduced Harrison's Musk some years ago, I have not seen any of it for some years. I am afraid it is lost."

It is obvious, therefore, that those who have purchased seed of Harrison's Musk and found the resulting plants fragrant could not have had that hybrid, but the seed of the fragrant Musk instead. The only influence that Harrison's Musk could have had would have been that this new hybrid, being a more robust plant, ousted Mimulus moschatus as a border plant, for nurserymen always prefer to sell a new variety which realises a better price in preference to an old one. Hence the fragrant Musk would be neglected, except in cottage windows. Recently I asked a large grower for a plant of Iris florentina and was told it was not grown now!

Another explanation would possibly be that the Mimulus moschatus is apt to die off in dry seasons and that seedsmen would naturally send to its home in N. America for seed, and would get the seed of Mimulus moschatus, but not of the scented variety, and the unwitting propagation of the plant would lead to the supposition that the fragrant Musk had lost its scent.

Mr. Ascroft learnt from Mr. F. R. S. Balfour of Dawyck, that in streams in this country and Scotland where plants of Mimulus moschatus and M. Langsdorffii have become perfectly naturalised, after a few years they seemed to disappear more or less completely.

So far as facts are concerned it appears perfectly clear that (1) the fragrant form of Mimulus moschatus may be reproduced by seed and that Harrison's Musk cannot. Whether the seeds of the fragrant Musk all produce fragrant plants there is no evidence to show; (2) that the wild North American plants possess no odour of Musk, or only a scarcely perceptible one, there is plenty of evidence to show.

The Assistant Director of Kew Gardens kindly informs me that "there are specimens of Mimulus moschatus in the Herbarium, from San Juan Island, Mt. Constitution; Montesano Wn.; N.W. Montana (Trail Lake); British Columbia (Vancouver Island in many localities); Utah; Oregon (several localities); and Yellowstone Park (Lady's Creek)."

The date of the loss of odour is subsequent to 1883, although records of diminished fragrance had been noticed somewhat earlier.

So far as existing experience is recorded concerning the growth of the scented Musk plant, Douglas does not seem to have recorded any difference in the environment of the scented and scentless forms of the plant. That it grows in peaty soil at the side of streams is generally agreed upon by those who find the wild plant in Vancouver. The evidence in this country is that if grown in sunny cottage windows in a pot, *with water kept in the saucer*, the want of fragrance has not been noticed, but in the case of plants in the open border the fragrance is not always perceptible. Moreover, the observation has been made that the plant is most perceptibly fragrant in the hot summer months, or when it is grown near the pipes on the floor under the stage in the greenhouse. A friend of mine has known it for fifty years, when it was planted near a spring in a garden in a sunny spot, and every year it has been fragrant, especially on warm, summer days. Even in Vancouver there are probably hot, sunny corners near streams, and in such a place Douglas may have found the plant.

Any one who knows Dartmoor well, and has felt the steamy heat in the ravines at between 1,000 and 2,000 feet, as compared with the cold winds on the tops of the hills on a hot summer day, will recognise the possibility of a sunny corner even in cold districts where fragrant Musk might flower and be odorous in the summer months.

If it can be proved that Musk plants, originally fragrant, have permanently lost their fragrance, the cause of it is worthy of careful research and prolonged observation, since it is known that the yield of essential oil in the Lavender and Peppermint is reduced in sunless, cold, and damp weather. There may be also differences in the soil that may lead to diminution of the yield of oil. A paper published by two Japanese chemists in Yakugakuzashi, in September, 1923, showed that the menthol contents of Peppermint oil grown in Manchuria decreased year by year, and after a few years the oil no longer yields crystals of menthol, but no explanation or theory concerning the fact is forthcoming. Some have supposed that the loss of scent in the Musk plant is dependent on the more or less abundance of the glandular hairs, but Mr. J. Boodle, of the Jodrell Laboratory, Kew, has kindly reported that on examination of a plant at Kew which appears to be Mimulus moschatus, but is scentless, the glandular hairs have mostly a long stalk and a two-celled head. Hairs of the same kind are present on the leaf of a Herbarium specimen of the wild plant collected in America in 1859, and there are apparently no other glands. The loss of scent is evidently, therefore, not due to the absence of glands, but possibly to a change in the nature of the secretions formed in them. There can be no doubt that temperature has a good deal to do with the uniform development of scent.

Chemists are well aware of the chemical changes that may take place under a slight change of temperature in ordinary chemicals, and the physiologist and biologist cannot fail to remember how limited is the range of temperature under which healthy products are formed in the human body, *i.e.*, 98° F. for the temperature of the blood, but if raised to 106° F. for a time soon leads to death from the formation of other chemicals produced by bacilli that thrives at a higher temperature. It is also well known how limited is the temperature at which the different enzymes of plants act.

The temperature at which natural perfumes are diffused in the atmosphere is also known to vary, and research in this direction is much needed. Although heat is operative in many cases, that is not so in the case of winter-flowering shrubs and flowers, nor those that bloom at night, like the night-flowering Stock. It would be worth while submitting the unscented Musk to tropical heat and moisture in a greenhouse to see if scent could be developed in this manner. *E. M. Holmes.*

LITSEA CITRATA.

I send the following note as it may be of interest to readers of the *Gardeners' Chronicle* resident where conditions are warmer than in the British Isles.

Comparatively few of the numerous species of trees which are indigenous to the Pine district of 4,000 feet to 6,000 feet in the Khasia Hills are represented by any large number, and in most cases the number is again very much more limited if only fully grown trees are considered. This is undoubtedly due to the indigenous Pine, Pinus Khasya, which appears to be capable of holding its position against any other species of tree in its vicinity. Its natural reproduction is exceptionally good and the soil and climatic conditions are favourable for its growth, but many other species of trees are equally favoured by these conditions and yet unsuccessful in their struggle for existence. From practical knowledge, I am led to believe that the Pine has some poisonous effect on all other plants grown in its proximity, and that this is one of the main reasons why it is the most dominating tree on the hill slopes surrounding this district. Thus, a few species of Oak and the Birch (Betula alnoides) are often the only combatants to be seen in areas of fully grown Pines, whilst the great variety of genera and species such as one finds in a forest of young Pines are, I venture to say, gradually exterminated.

It is only in areas where the Pines have been considerably thinned from time to time that well matured trees of such species as Litsea citrata are to be found, and in such places Litsea citrata grows to a height of 50 to 60 feet with trunks of 5 feet in circumference at ground level.

When flowering it can usually be located by the humming of bees which are probably attracted by the delightful Orange fragrance given off by its flowers, whilst the leaves also have a very pleasant fragrance when crushed.

Except when in flower or fruit, there is no distinguishing characteristic between the male and female tree. The male flowers are somewhat larger and of a brighter yellow colour, while the anthers being a Buttercup yellow increase the ornamental value of the blooms.

The tree is conspicuous in the forest by its smooth green bark, but the bark and leaves of the older trees are often discoloured by mildew. Of the sixty trees which I have recently examined on an extensive search in the Pine forest, between 5,000 feet and 6,000 feet, fifty-two were bearing female flowers and eight only (which were growing together, forming a clump) bearing male flowers. Two trees only were observed bearing fruit (Fig. 33), but numerous seedlings in various stages of growth were to be seen scattered here and there, and the birds, which are very fond of the fruit, are, I think, responsible for its distribution. The natives also value the fruit highly for medicinal purposes, and the local name of the tree is Dieng-Jalew. Litsea citrata is a tree of rapid growth and its ornamental value should win for it a place in every garden where climatic conditions are favourable. *L. Ruse, Shillong, Assam.*

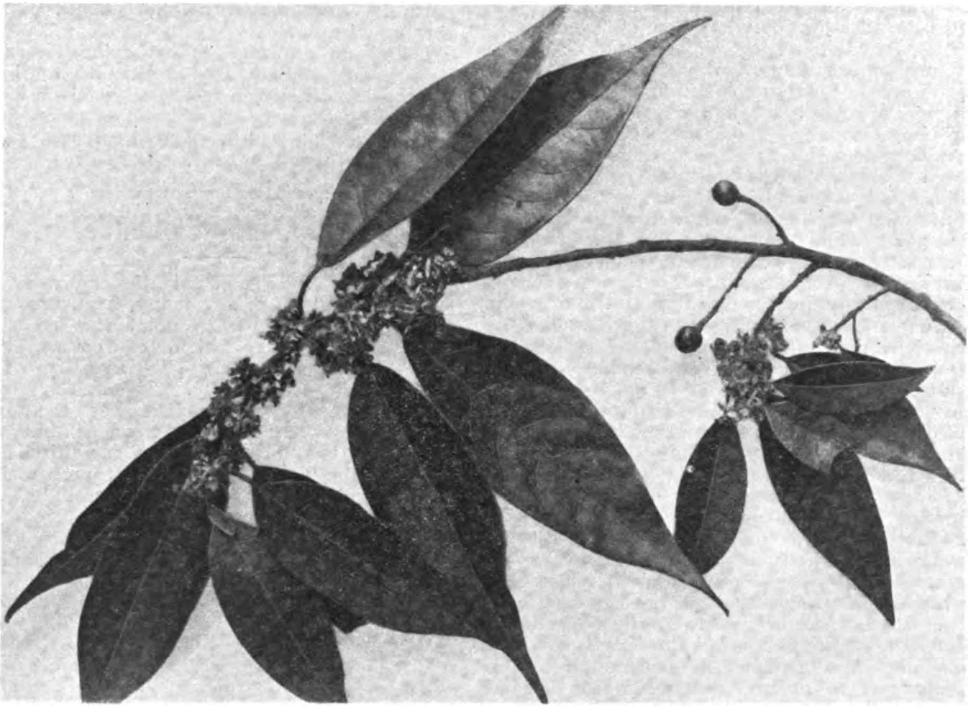


FIG. 33.—LITSEA CITRATA: FLOWERS AND FRUITS

BULB GARDEN.

FRITILLARIA PALLIDIFLORA.

Known in this country for many years Fritillaria pallidiflora is yet a rare plant, and, it must be admitted that it is more quaint than beautiful. From the greyish-green foliage, sparsely produced, rises a stem, surmounted by one, rarely two, flowers of a uniform straw or pale-buff colour; the nodding blooms are persistant, and as they appear in March or early April, they may form an interesting feature for a half-shaded nook in the rock garden, or the sheltered woodland. The plant reaches a height of from one foot to eighteen inches, and is a good subject for the embellishment of the alpine house or the cool greenhouse.

Reproduction is slow, offsets but rarely appearing; as against this, however, the plant is thoroughly hardy, and may be left undisturbed for years in the certain knowledge that in its season the greyish leaves and peculiar flowers will duly appear. Loam, leaf-mould and vegetable matter constitute a suitable rooting medium. *R. E. A.*

TREES AND SHRUBS.

HYBRIDIZATION OF BERBERIS.

In the *Gardeners' Chronicle* of January 5 (page 5), Mr. Vicary Gibbs contributed an extremely interesting note on Berberis from home-saved seed and from imported native seed. He pointed out that, with one or two exceptions, all the seeds of species sent home from China by Mr. Wilson and other collectors have come true, whilst—again with one or two exceptions—the same species, when raised from seed saved from plants growing in English gardens, throw a large proportion of hybrids.

I was greatly interested in why this should be so, and hoped that in the following issue some one would write, giving an explanation. There has, however, been no further mention of the matter so I venture to put forward a theory which I think may explain the matter. It is, however, nothing but a theory, and I am unable to support it from personal observation of the pollination of Berberis either at home or abroad. The methods employed by Nature to ensure cross-fertilisation between different flowers of the same species are pretty widely known, and extraordinarily ingenious. There are, on the contrary, some well-known devices to prevent cross-fertilisation between flowers belonging to different species and genera. Perhaps the best known among flowers whose pollen is carried by insects, is the custom among insects of paying a round of calls among flowers of one species at a time. A bee gathering honey in a meadow does not go from Buttercup to Daisy, from Daisy to Dandelion, and so on to Cowslip. If it starts with Buttercup it sticks to Buttercup for some considerable time, and in going from Buttercup to Buttercup, it incidently carries Buttercup pollen for the fertilisation of Buttercups. If the bee gathered promiscuously from several species and genera at once, there would result a great waste of pollen in impossible marriages, and probably a crop of distressing mongrels as well.

It is improbable that the bee knows anything about the pollination it is effecting. It does not confine its attention to Buttercups in order to ensure pure Buttercup marriages. It probably has some very good reason of its own for specialising on a particular species on a honey-gathering expedition. Possibly it finds it quicker and easier to work in this way, and whilst it suits the bee, it at the same time fits in very well with the marriage laws of the flowers.

I do not know what particular insects visit the various Chinese species of Berberis in China and carry their pollen. But it is fairly safe to assume that the whole business is highly specialised, and the insects confine their attention to one species at a time, even when several species of Berberis are growing side by side. Or it may be that each species of Berberis has its own particular species of insect visitor. But these same Berberis brought to English gardens find themselves without their accustomed insect guests. The Aldenham bees, for instance, cannot specialise as do the Berberis-visiting bees of China. Or, rather, they can only specialise, as does Mr. Vicary Gibbs himself, in universalism. Barberries and insects in China may have been adapting themselves to each others ways for some millions of generations. But at Aldenham a simple country bee may find itself in a plantation of a hundred or more distinct species of Berberis, none of which it has ever seen before. If the bee is to get Berberis honey at all he must get it mixed, and mixed honey spells mixed pollen and mixed marriages.

Is not this probably what happens? Is it not simply that under the high specialisation of natural conditions the Chinese insects are able to distinguish one Berberis species from another, whilst to the British insect a Chinese Berberis is a Chinese Berberis—a rich mine of honey and nothing more. *Clarence Elliott.*

PLANT NOTES.

LINNAEA BOREALIS.

This is an ideal plant for cool places in the woodland, for growing among small Ferns on a shady side of the rock garden, or adorning a mossy stump. It is a creeping species (the only member of its genus), allied to the Honeysuckle and Abelia, and it produces very slender, prostrate branches, which delight in threading their way about other dwarf plants. The evergreen foliage, often stained with a bronzy-red, consists of small, egg-shaped, opposite leaves, and at intervals along the trailing growths appears on erect, thread-like stems, a pair of dainty little rosy-pink bells.

The Twin-flower, as it is called, is a native of northern Europe, including parts of Britain, while from the Canadian Rockies and many localities in British Columbia westward almost to the shores of the Pacific, there grows in great profusion a form sometimes known as L. americana.

Though many authorities give this plant specific rank, not a few consider it merely as a geographical form of the European one. Be that as it may, the Canadian Linnaea is generally considered the better doer, and while it is certainly rather larger in all its parts its blossoms are a fuller colour, tending to rosy-crimson.

I find do difficulty in satisfying either of these plants. What they appear to need are uniform conditions of moisture, good drainage, a cool, half-shady or wholly sunless place, some loose vegetable soil as a root-run and something cool to ramble over. *A. T. J.*

SPRAYING FAILURES.

Sceptics who scoff at the apostles of spraying—and there are many, still, who will not believe—are able to point the finger of scorn at failures which, of course, they claim to support their glib assertions that spraying is futile folly. Even the most ardent advocate of spraying has to admit that failures are far too frequent, but the tendency has been to say as little as possible about the failures, lest, presumably, both recruits and waverers should be discouraged, and tempted to give in.

No real progress can be made when truth is suppressed, and it is essential to candidly admit the limitations of spraying, and when failures occur, to investigate them, discover the causes and make them widely known.

When attempts at investigation of failure are made it is generally a matter of argument between the purveyor of the spraying materials and the man who uses them; the one blames the other for careless workmanship, and in retaliation the workman condemns the spray-fluid, and that is as far as it gets. Manufacturers of spraying materials are undoubtedly putting really good, capable preparations on the market, and where fluids fail it is generally where they are home made, or because bought fluids are not diluted strictly in accordance with the manufacturer's directions, or are used for other than their correct purposes. The one fault with the manufacturers is that in order to meet competition and popular demand they strive to produce an individual spray to cope with too comprehensive a range of pests. It would be a boon if one mixture could be concocted that would grapple with all manner of insects or with the many fungous diseases that affect trees and plants, but it is better to be explicit than to claim too much.

A spraying chart is an urgent need—one that tabulates pests, the subjects they infest, the times at which they are vulnerable to attack, and the materials that will destroy. The trouble is that the only people who seem to be sufficiently interested and enterprising enough to produce and distribute anything of this nature are the manufacturers of spraying materials, and, naturally enough, the products of competing firms are not recommended and the chart advises the use of the particular proprietary sprays for as wide a range of pests as possible. Whilst these conditions prevail progress will be slow, and failures far too frequent.

Commercial fruit growers have advanced beyond the private gardener in the campaign against pests and diseases. The matter is too vital to the commercial man to be treated casually, and the fact that fruit farming is more or less colonized in certain districts has a great bearing. The commercial growers have their local associations, and part of their work is to disseminate information regarding local pests and diseases, and to furnish instructions regarding what to use and when to use it. Private gardeners are in a vast number of cases isolated and thrown back upon self reliance. They cannot possibly concentrate so entirely upon this subject as those who seek their livelihood on fruit farms, and to urge that every gardener should be an expert plant pathologist would be to talk unreasonably.

It is quite a feasible argument that where young journeymen or garden labourers are deputed to spray, even the best of fluids are sometimes rendered ineffective by faulty application, but failure is far more attributable to several other reasons. It is to be feared that all too often the fact is overlooked that although orchard or garden fruit trees may be temporarily cleansed by spraying, many of the pests exist and flourish upon the occupants of shrubberies, on the hedges surrounding the establishment, and even upon the weeds occupying the ground under the trees, or the waste, neglected corners of the rubbish tip. Such breeding grounds are amply sufficient to nullify the best results of spraying the trees, which, if it is to be worth while, must be treated as one move only in a comprehensive battle against the foes that annually take an appalling toll from the garden productions of the whole country.

The "spraying" gardener who is surrounded by negligent neighbours is in a well nigh hopeless position, and in his interests, and in the whole interests of British horticulture, it is urgent that occupants of land should be rigidly restrained from permitting pests to flourish and menace the trees and crops of surrounding land. There should be no necessity for State interference in such a matter, but if liberty of action is allowed to work havoc, restriction of that liberty becomes essential and inevitable.

In claiming it to be unreasonable to expect every gardener to be expert in plant pathology, no suggestion is made that the controllers of gardens should make no effort to trace the identity of the pests and diseases they encounter. Failures are bound to occur where ignorance reigns. The way to avoid failure is first to ascertain the nature of the enemy, for that will be a guide to the best spray to use, and the best time to use it. The Royal Horticultural Society, The Royal Agricultural Society, The Ministry of Agriculture, The Chamber of Horticulture, and a host of scientific experimental stations exist, all of which are willing to impart information, to identify pests, and advise remedies.

What is the payment of an annual subscription, and a trifle in postage to secure reliable information compared with the waste and vexation belonging to failures brought about by groping in the dark? Much progress has been made, a great deal more spraying is done than in time past, and it is better to spray than not to spray, but it is too expensive, and too irksome a task to be carried on in haphazard manner. Infinitely greater headway should be made, and would be made, if garden owners sought more diligently for accurate information, and thus made sure of choosing the right weapons of warfare and selecting the most favourable times for their use. *A. J. Macself.*

FRUIT CONFERENCE AT SEALE HAYNE AGRICULTURAL COLLEGE.

By invitation of the Governors, a conference on Fruit Growing was held at the Seale-Hayne Agricultural College, Newton Abbot, Devon, on Monday, January 21st. Notwithstanding the difficulties of travel as a result of the railway strike and the very inclement weather—it poured in torrents all day—the Principal of the College, Colonel Edwardes-Ker, is to be congratulated on an attendance of about one hundred growers and others interested drawn from the various scattered fruit areas in Devon and Cornwall.

The Principal, in the absence of Mr. G. Lambert, M.P., Chairman of the Governors, opened the Conference, mentioning that West of England fruit growers always claimed to be able to grow as good fruit, particularly Apples, in their part, as growers in other parts of the country. He asked those present, whether this was a fact, and if it was, did the rather longer distance from markets and the greater rainfall, 35·45 inches per annum, as compared with 25·27 inches in the East, prevent any considerable economic extension of the industry. Personally he thought it did not, for the more favourable general climatic conditions outweighed the disadvantages.

As regards marketing, the longer distance from consuming centres made careful attention to this question a *sine-qua-non*, but he regretted to say that in this respect the West generally was far behind the other districts in their systems of distribution.

The first paper on "Some Insect Pests of Fruit" was read by Mr. W. E. H. Hodson, Advisory Economic Entomologist to the South-Western Province. He detailed the various clsses of insects attacking the Apple and the means generally adopted for combating them. In the discussion which followed it appeared that woolly aphis and codlin moth are the two chief Apple pests of the West. This is what one would expect seeing the vast number of poorly cultivated farm orchards which receive little or no pest control. So far as woolly aphis is concerned great things are hoped from the release this summer of a quantity of the Chalcid Fly (Appleinus sp.), which is a parasite of this aphis and one that has recently been imported and bred by the Ministry of Agriculture. The measure of success of this form of treatment will depend on the acclimatisation and consequent rapid increase of the Chalcid and whether it in its turn will remain free from being preyed upon. At any rate a system such as this seems the only satisfactory way of dealing with a pest so common in orchards, the spraying of which is an uneconomic proposition.

Mr. W. S. Lobjoit, Controller of Horticulture, Ministry of Agriculture, read the second paper entitled "The Possibilities of Fruit Growing in the West of England." Before considering the local reasons whether it would be sound financially to increase the area of fruit in the West, Mr. Lobjoit discussed the view frequently expressed now by growers, that a stage of overproduction, and especially of Apples, has been reached. The speaker was definitely of opinion that this was not the case. Firstly, the people of these Islands consumed the least amount of fruit per head of any of the civilised countries. Secondly, so long as imports of fruits remained as vast as they are at present—for example, in the first eleven months of 1923, their values were Apples, £6,000,000; Pears, £1,536,000; Plums, £1,571,000; raw Currants, 303,000; and Gooseberries, £123,000—it was quite obvious that here was an outlet for home grown produce by replacement of the imported. It is only possible to effect this replacement by more economic production, and by (1) Growing the article required by the consumer; (2) Reducing costs of production; (3) Presenting the article to the consumer in a better and more attractive form.

How many times, said Mr. Lobjoit, has this case been put to the British grower? How simple a problem it seems to those who do not know the intricacy of the fruit trade? And how difficult is it to attain in reality?

Mr. Lobjoit then dealt with the benefits accruing to the locality by increasing the fruit area. He said that it had been shown that fifty acres of fruit gave as much employment as a thousand acres of grass land, and that this meant a greater rural population, higher parish rateable value, and increased turnover to local tradesmen.

Mr. Lobjoit's answer to his questions was that there was room for extension provided it was carried out on the right lines.

As regards the farm orchards, it appears that the gradual decrease in acreage, which in the ten years 1910–1920 amounted (in Devonshire) to 4,000 acres, has now been arrested and that a slight increase has been recorded this year, though in the neighbouring county of Somerset the decrease is still maintained.

The rehabilitation of these Orchards was recommended by replanting only approved varieties, better cultivation and, where possible, top-grafting.

As regards the disposal of the bulk of the fruit from these farm orchards, Mr. Lobjoit said that even the best samples, put in the market as they were at present in a rough manner, with no bulk of varieties known to the consumer, had a badly depressing effect on the sale of good quality English Apples, and that it was of the utmost importance to keep as much as possible of this class of produce off the consuming market and to find an outlet for it for cider, jam-making, &c.

In the discussion which followed this interesting paper, the difficulties in the way of renovating old orchards by top-grafting was emphasised. One speaker mentioned that Silver Leaf was a disease which frequently rendered this system of renovation a failure. In his own case, over fifty per cent. of the trees in a five-acre orchard top-grafted in the most approved way with Bramley's Seedling and Newton Wonder, had been killed with Stereum after they had grown well and been free from disease for three years and had made five to six feet of growth.

The Stereum infection undoubtedly came from stumps in hedge rows and neighbouring covers, and the disease was the more virulent on account of the heavy rainfall producing more favourable conditions for infection and development. Other speakers expressed similar experiences.

After lunch, which was provided in the College refectory, Mr. R. Wellington read a paper on "Some Unsolved Problems affecting the Fruit Grower," which we hope to publish in a subsequent issue. The discussion which followed revolved chiefly about the causes and possible means of checking "biennial fruiting," the lecturer giving details of the system of manuring advocated by the late Mr. H. E. Pollock Hodsell, and carried out so successfully by the late Mr. S. H. Bickham at Ledbury.

The last paper, on "Orchard Renovation," was read by Mr. C. Mackintosh, the Seale Hayne Horticulturist, who gave an outline of the best recognised practice in this direction.

HOME CORRESPONDENCE.

Young Lads and Horticulture.—I have read with interest the correspondence in your paper on the subject of "Young Lads and Horticulture," and at this stage it seems appropriate to mention the increased educational facilities now available for assisting the education of gardeners, smallholders, nurserymen, etc. There are now in existence a number of Farm Institutions with horticultural sections and classes for gardeners. These classes should do much to enable the present generation to obtain a better understanding of their work, and thereby stimulate greater interest and make more intelligent and better workers. The courses are in many cases made more accessible by means of County and Ministry Scholarships. The object of the classes is not to turn out a "complete" gardener in the course of a few months, but rather to give an introduction to the subject, with some of the why and the wherefore of things, to enable the students to understand sufficient to continue their studies and learn more. At this and some other Institutes three short courses are arranged of four weeks each, which together form a complete course. By spreading the course over the three seasons the various aspects of horticulture can be dealt with in a practical way in the minimum of time. Employers are usually only too glad to enable the lads in their employ to leave for these courses, as they have found from experience that as a result of the courses the lads are better and more intelligent workers. *C. E. Hudson, Hort. Instructor, Herefordshire Institute of Agriculture, St. Albans.*

——I was sorry to read the opinion of *Constant Reader* in your issue of January 19, but, nevertheless, it is true. The knowledge and experience one requires to be an efficient gardener, makes an ambitious young man wonder whether it is worth while to follow up his studies, having regard to his own future as a good gardener. The question is a serious one for journeymen who are now in manhood and have spent precious time since leaving school in laying the foundation for what they hoped would be a successful career. I am afraid it is too late for them to start at the bottom of the ladder in another calling. What is the opinions of others? *Ambitious.*

Gladiolus Melleri.—The flower (see Fig. 29, p. 73) shown under this name at the last meeting of the Royal Horticultural Society, was admired by many, but a few visitors cast a doubt whether it was correctly named. Mr. Wallace was overheard to say that he thought it was like a Watsonia type. On returning home I thought it would be interesting to find out more particulars, if possible, and I eventually came across the following:—"G. Milleri (Miller's). The flowers of this species are violet coloured, produced on stems eighteen inches long. Was introduced in 1751. Plant comes in bloom late in May or early June.—G. Watsonioides. A species similar to G. Watsonius. The flowers are scarlet produced on spikes eighteen to twenty inches. It is best treated as a full bulb, being planted in frames or with protection from cold.—G. Watsonius (Watson's). A very early blooming species used largely for winter forcing. The flowers are an orange-red. Plant grows about sixteen inches high. Corms are nearly hardy and will live over winter with protection. Should be planted in the fall."—Judging from the above Mr. Wallace does not seem to be far wrong. *Smilax.*

[Gladiolus Melleri was described by Baker in the *Journal of Botany*, vol. xiv, p. 334 (1876), as having a bright red perianth and a curved, narrowly funnel-shaped tube and carrying from 6–12 flowers in a very lax spike. It is unfortunate that there is a G. Milleri, a South African species, which is figured in *Bot. Mag.*, t. 632, but this is totally unlike the G. Melleri exhibited at the Royal Horticultural Society's meeting of January 26. G. Watsonianus is now referred to Antholyza revoluta—Eds.]

Tulipa saxatilis.—In your issue of January 26, *R. E. A.* has given a most misleading account of the above species. From his description of the flowers and leaves it is evident that he has got the true species, but has failed to find the right conditions for growing it, probably forgetting that the climate of Crete is much warmer than in this country. To say of the only Tulip that normally (and with me, almost invariably) produces two flowers from each bulb as shown in the *Bot. Mag.*, ser. 3, vol. xxxiv., t. 6,374, that "it is not so generous with its flowers as the majority of Tulips" is ludicrous. If *R. E. A.* will plant his bulbs under a south wall and *not* practise "annual lifting" I think he will get better results. *Alfred O. Walker, F.L.S.*

FRUIT REGISTER.

APPLE RED VICTORIA.

THE note on page 28 from the pen of *Pomona* in praise of this very beautiful Apple raises a point of interest and importance to commercial growers. Your contributor says the "fruits are so highly coloured as to suggest a first-rate dessert variety." There can scarcely be the shadow of a doubt that rich colour is an asset of outstanding value in a commercial dessert Apple, but it is an extremely moot point whether colour assists the sale of a cooking variety in the smallest degree. Several years ago, when there was much talk of the great future awaiting Crimson Bramley, Mr. Wm. Poupart expressed the opinion that there was little, if any, room for it, and added that colour was not essential in a cooking Apple. On page 27 *Market Grower* says "our cooking Apples are satisfactory" and puts in a strong plea for more coloured dessert varieties for culture under commercial conditions.

Early Victoria (Lynn's Seedling. Emneth Early), from which I have been informed Red Victoria originated, is the most valuable early, commercial cooking Apple and it has established itself in that position in a comparatively brief period of years, notwithstanding that the tree is subject to Silver-leaf disease. It may be found in nearly every Apple plantation round Wisbech, the district in which it was raised, and in other parts of the country too. What, however, can be said of Red Victoria? It is seen here and there in a limited number of trees certainly, but it cannot be claimed that it has really "caught on" as an early commercial Apple. Nothing serious can be said against it; so far as I am aware; the tree is a good grower and regular cropper, the fruits are of excellent size with fine cooking qualities and their gorgeousness of colour equals that of Gascoyne's Scarlet Seedling. Must we, then, regard its colour as so prejudicial that there is no place for it in our markets? One is forced to think that there is something in it, if only from one's experience of the truth of Mr. Poupart's views in regard to Crimson Bramley. The opinions of others on the point would be of interest and practical value. *W. T.*

HIGHLY COLOURED PEARS.

(Concluded from p. 66).

Durondeau or De Tongue produces large, highly-coloured fruits. Grown on suitable soils, the flesh is tender, juicy, sweet and delicious. The skin is shining and almost wholly covered with rich crimson, some shades of yellow and plenty of russet dots. The eye is small and open; the stalk an inch long. This fine Pear ripens early in November, and is a handsome and highly coloured variety.

Beurré Clairgeau, grown on some soils is more useful for stewing than dessert, but I have known this handsome and showy Pear to be of first quality for dessert purposes. It ripens in November. This large and highly coloured variety finds many admirers when staged on the exhibition table.

Forelle or Trout Pear is in season from November onwards. The fruit is of medium size, of beautiful shape, and with markings as pretty as could be expected on any fruit. The skin is smooth, coloured lemon-yellow and bright crimson, with numerous crimson spots. The eye is small: the stalk an inch long. The flesh is white, buttery, melting, sugary, with a vinous flavour. It crops splendidly, grown either as a cordon, espalier, or bush.

Passe Colmar is a Pear with nearly thirty other names; it ripens in November and December. The fruit is of medium size and of the best quality. The colour is lemon-yellow, flushed red next the sun, with numerous brown dots and lines of russet. The flesh is yellowish-white, juicy, melting, sweet, with a fresh, vinous flavour. *Pomona.*

INDOOR FIGS IN BORDERS.

THE beginning of February is a suitable time to commence the forcing of Figs, the house having previously been cleansed and the trees washed with warm soapy water. Figs are easily cultivated in pots, and the earliest fruits are obtained from pot trees, but as these early trees will have been started some time since it is my intention to restrict my remarks to the growing and training of permanent trees under glass.

Several types of glass-houses may be adapted to the cultivation of the Fig; a span-roofed house is, perhaps, the best for bush specimens in pots or for trees planted out in narrow, restricted borders with single stems a foot or eighteen inches in height.

The Fig is easily propagated by layering or from cuttings and eyes. Having selected young trees established in six or seven inch pots, with six to eight shoots from which the leader has been pinched at the height it is intended to start the side shoots, the next consideration is the border. Where loams of varying quality can be obtained, that known to gardeners as medium loam is to be preferred, but if heavier soil is used, this should be lightened in texture by the addition of burnt earth, broken bricks, old lime rubble, etc. Manure should not be used with the exception of a little bone-meal, as no difficulty will be experienced in getting the trees to make plenty of wood growth. Assuming that a lean-to house is to be planted the trees may be placed at the front of the house and trained up a trellis, or they may be grown on the back wall, which should be furnished with the branches to its fullest extent, occupying the front of the house, where space permits, with bush trees without shading those at the back.

The roots should be planted in inside borders raised above the general level of the house, as the roots need plenty of warmth when the trees are growing and ripening their fruit, and it is very necessary for water to pass away rapidly through the compost. An excavation equal to the depth of the drainage will be sufficient; in some cases the drainage may be raised to the ground level, but this depends on the structure of the house. Drain pipes four inches in diameter should be arranged to carry away the drainage water, with about twelve inches of clean drainage material. There should be about one square foot of border to every square yard of trellis when the tree is matured.

In some cases, owing to the nature of the subsoil, it may be necessary to concrete the floor, when nine inches depth of drainage would be sufficient. Place turves, grass side downwards, over the drainage, beat the compost firmly as it is placed in position and keep it in position by retaining walls to the limits determined upon. A border twenty inches deep and two or three feet wide will be suitable the first year according to the size of tree planted. Fan trained trees are the most suitable for growing on walls and the roots should be planted firmly and well.

Train the shoots one foot apart: surplus branches should be cut back to short spurs, not for the purpose of fruiting, as the Fig does not fruit very successfully on spurs. The spurs, however, will produce a succession of shoots that will be useful for keeping the tree supplied with fruiting wood; weakly spray growths should be removed entirely.

The shoots may be allowed to grow until four or five leaves have formed, when the point of each should be pinched to cause it to branch. Select two or three of the strongest shoots and train them in the same manner as before, removing the weak and superfluous ones. The following year the embryo fruits will be observed swelling towards the end of the previous year's shoots and these will constitute the crop for the season; at a later stage the fruits should be thinned to two on each shoot.

Other fruits will form later and commence swelling on the current year's growth; these are better removed, thereby contributing towards maturing the growth early and also strengthening the young trees, which, by the end of the season, will have grown to a good size, capable of perfecting two crops of fruit the following year.

The subsequent training should be on the same lines as before until the allotted space is filled, when some of the strongest shoots and those which are becoming long and bare should be removed or shortened each year. By doing this, dormant buds will develop and furnish the requisite amount of bearing wood without greatly increasing the size of the tree.

Extension training, where space permits, is the simplest of all methods of growing good Figs, and this may be carried out by thinning the old branches and feeding the roots liberally.

Being a native of sunny climes the Fig enjoys plenty of warmth, and yet the fruits are better when not exposed to the direct rays of the sun. The ample leafage of the tree provides a natural shade, and this fact should not be lost sight of. Certain fruits, Peaches and Nectarines, for instance, are much improved by exposure to the sun. Not so the Fig, the finest fruits of which are to be found where they receive the rays of the sun in a subdued degree.

The main details of training should be to regulate the branches and shoots in such a manner that while the tree receives sufficient light to produce short-jointed, well-ripened growths, the fruits are neither unduly exposed nor subjected to dense shade. The latter contingency, owing to the luxurious habit of the plant, is the most likely to occur, therefore the roots of such trees should be kept well within bounds by means of turf or brick walls. During the growing season the surface feeding roots of such trees should be encouraged by mulching them with light, rich manure and watering them with weak liquid manure, soot-water, and guano-water on alternate occasions. Plenty of heat and moisture are necessary for Fig trees; the night temperatures should range from 50° degrees at the beginning, increasing the amount of warmth gradually to 65° at night, with a little air. The day temperatures may range from 60° to 80° or more on bright, fine days.

The fruits of the first crop will by this treatment attain their fullest size, ripen quickly, and young shoots laden with small fruits become well advanced for the successional cropping. The syringe should be used freely, not only during the flowering stage, but also through the stage of the final swelling before ripening, when the amount of ventilation with steady fire-heat should be increased. As soon as the fruits cease swelling and show signs of ripening, admit more air, use plenty of fire-heat and reduce the amount of syringing, taking advantage of favourable opportunities to meet the requirements of the two crops, without injury to either.

The second crop is generally a heavy one and the fruits should be thinned with a liberal hand, otherwise they will be small, although of excellent quality. By allowing the trees to carry excessive second crops, and to continue bearing long after they should be at rest, they are often rendered practically useless for early forcing the following year, and often the cause of the trees casting the fruits in the spring. The chief requirements of the Fig are of a moderately rich, well-drained, border; fairly dry condition during winter, followed by a long season of rest. The following varieties will meet the requirements of large and small gardens and require no special treatment: St. John, Pingo de Mel, Brown Turkey and White Marseilles, while Negro Largo, Bourjassotte Grise, which is, perhaps, the richest of all Figs, may be relied upon as regular and constant bearers for midseason and late use. *F. Jordan.*

SOCIETIES.

THE ORCHID CLUB.

THE meeting of The Orchid Club, held on February 1, was noteworthy for the large number of species exhibited by various members and by Messrs. A. J. Keeling and Sons, illustrating the communication given by Mr. B. J. Beckton at three o'clock on "The so-called Botanical Orchids."

Mr. Beckton advocated and established a good claim for the more general cultivation of a selection of species of various Orchid genera, pointing out the surpassing interest of their habit, culture and morphology, and the exquisite beauty and character of the inflorescence of many.

The importance of maintaining in cultivation representatives of the various genera was warmly supported by Professors Weiss and Lang, not only for their interest and intrinsic beauty, but also for the purpose of investigation and instruction.

PREMIER DIPLOMA.

Cypripedium Mrs. William Pickup (*C. Aisne var. Thisbe* × *C. Alcibiades illustris*) from Dr. F. CRAVEN MOORE. A large well proportioned flower; the dorsal, which is 3½ inches trans-diameter, is orbicular in form, slightly concave, white with a dark crimson (C. et C. 578) luna fading upwards into the white ground, leaving a broad white margin slightly goffered. The petals are broad and well displayed; yellowish-green flushed with crimson and with a well defined yellow edge. The pouch is similarly coloured.

DIPLOMA OF MERIT.

C. Olympus var. The Chairman (*Leeanum Clinkaberryanum* × *Alcibiades illustris*), from Mr. B. J. BECKTON. A large flower, suggesting a large and refined form of Alcibiades. The dorsal sepal is 3 inches trans-diameter, square, white with a green luna and with lines of small crimson spots radiating up on to the white ground. The petals are green flushed with crimson. The lip is similarly coloured.

The following new hybrids were submitted for registration:—

Cypripedium Thisbe Beckton (*C. Aisne var. Thisbe* × *C. Leo-nitens var. Becktoniae*). From Dr. F. CRAVEN MOORE.

C. leightonense (*C. Earl Tankerville* × *C, Becktoniae*). From Dr. R. N. HARTLEY.

GROUPS.

FRED HARDY, Esq., Ashton-on-Mersey (Gr. Mr. C. Branch) staged a group of Odontoglossums, including several plants of O. crispum xanthotes, crispums of the Dorin type, a specially fine hybrid crispum of the rosy type, and coloured hybrids of great excellence.

B. J. BECKTON, Esq., Irlams o' th' Height (Gr. Mr. W. A. Stewart), showed a group of Cypripedium Becktoniae, intermixed with which were various botanical species, the central plant being a fine pan of Goodyera discolor; other species shown were Arachnanthe Clarkei, Saccolabium bellinum, Ipsea speciosa, Odontoglossum Œrstedii, O. Uro-Skinneri, and various Masdevallias.

A. T. CUSSONS, Esq., Kersall (Gr. Mr. F. Cookson), exhibited a group of mixed Orchids.

DR. F. CRAVEN MOORE, Manchester, showed a selection of Cypripediums.

DR. R. N. HARTLEY, Wigan, exhibited a group of choice Cypripediums.

J. H. WALKER, Esq., Eccles (Gr. Mr. G. Weaver), showed a fine mixed group.

W. MORTON JACKSON, Esq., Wilmslow, staged Lycaste plana, L. Skinneri var. Knaresborough and a magnificently flowered specimen plant of Masdevallia Schröderiana.

MESSRS. A. J. KEELING AND SONS, Bradford, staged Cypripediums, Odontoglossums, Odontiodas, Masdevallias, the curious Bulbophyllum Pechei, Epidendrum ciliare, Megaclinium robustum, the pretty little Dendrobium Kingianum and numerous other interesting Orchids.

READING AND DISTRICT GARDENERS'.

THE first fortnightly meeting of the spring session of this Association was held on Monday the 28th ult., when Mr. M. Goddard presided. There was an excellent attendance of the members. The association was visited by a deputation from the Egham Gardeners' Association, and their hon. secretary, Mr. R. Hothers. Bishopsgate House Gardens, Englefield Green, read an interesting paper on "How to Keep a Conservatory Gay from January to December." In his opening remarks he mentioned that the raising of flowering and foliage plants for the decoration of the conservatory was one of the most interest branches of gardening work. Dealing with climbing plants the lecturer pointed out that if these were well grown they would provide a great quantity of flowers, thus keeping the conservatory gay without having to use many pot plants. Mr. Hothers also dealt with specimen plants, hanging baskets and flowering plants suitable for the various months of the year. Great stress was laid on keeping the conservatory clean and the plants free from pests. An interesting discussion followed in which Messrs. Goddard. Young, Blackwell, Cook, Reeves, Gower, Dore, Carter, Terry, Cox, Woolford, Wade, Goodger, Wheeler, Howlett and Fulkes took part. The judges called special attention to some excellent Rhubarb staged by Mr. E. Cooper of Conisborough Avenue, Caversham.

BRITISH FLORISTS' FEDERATION.

THE Annual General Meeting of the members of the British Florists' Federation was held on Thursday, the 31st ult., at the Connaught Rooms, Great Queen Street, W.C. Mr. W. H. Page presided, and there was a fair attendance of members including most of those who have been prominently associated with the work of the Federation since its institution.

After the formal opening proceedings, the Secretary read the Report of the Committee for the year 1923, together with the Statement of Accounts. These had already been circulated to members and the press. Reference was made in the Report to the difficulties of the past season from the cultivators point of view; to the wide variation of prices for flowers; to the lecture on "Packing Flowers," given by Mr. George Shawyer; to the Federation's association with the Chamber of Horticulture, and especially with its Technical Committee which offers assistance to growers who find their crops attacked by insect or fungous pests. The Report also dealt with the great Quinquennial Show at Ghent, to the English section of which the members of the Federation contributed so large a part. The work done in connection with Covent Garden Market was also reviewed, and a scheme was presented for the granting of certificates to plants and flowers of value for the cut flower and pot plant trade.

The President touched briefly on the work of the Federation and urged that those who were already members should endeavour to secure new members so that the Federation might be strengthened and its usefulness increased.

The Accounts showed that a balance of £27 2s. 4d. is carried forward as compared with £12 0s. 4d. brought forward from 1922. The total subscriptions amounted to £250 16s. 0d., while expenses included an affiliation fee of £21 to the Chamber of Horticulture, and a special donation of £16 to the Chamber towards legal expenses incurred in connection with the classification with merchandise.

Mr. George Shawyer seconded the motion, and the Report and Accounts were adopted unanimously. On the proposal of Mr. Mills and Mr. J. Page the officers and committee were thanked for their past services, and on the motion of Mr. A. W. White and Mr. D. Ingamells, Mr. W. E. Wallace was elected President for 1924, and there was ample evidence of the very high esteem and regard in which Mr. Wallace is held. Messrs. Cobley, Kay and Co. were re-appointed auditors, and the eligible retiring members of Committee were re-elected on the proposal of Mr. G. Monro and Mr. G. W. Leak, while Messrs. Miles, Engelmann, and Fincham were appointed to fill vacancies.

The scheme for granting certificates to plants and flowers suitable for commercial purposes was presented by Mr. D. Ingamells and Mr. H. T. Mason, who moved its adoption. Many of the members present discussed the subject and the various details thus arising were referred to the General Committee. The scheme was adopted and it now remains for the General Committee to appoint a suitable Floral Committee and arrange details and meetings, and we understand when these arrangements are complete they will be communicated to the Press. A vote of thanks to Mr. W. H. Page concluded this part of the business.

Tea was served, and immediately afterwards Mr. C. Engelmann gave an address on The Heating of Glasshouses. He spoke at some length and reviewed the various systems of heating since flues were first used. As Mr. Engelmann has travelled considerably in the United States he was able to describe various systems of steam heating, and he appeared to have arrived at the conclusion that a combined system of hot water and steam heating was, on the whole, the best and most economical. He pointed out that by the use of steam a very large establishment may be heated from one central point instead of, as in hot water, from numerous boilers placed in various parts of the nursery. It was obvious, as he said, that the central heating system for a large establishment would mean a tremendous reduction in the cost for labour and also in fuel, while so far as his experience went the requisite temperature of the houses could be maintained quite easily.

When Mr. Engelmann concluded, some half a dozen members rose to their feet to ask questions, but Mr. G. Swawyer was the first to catch the eye of the new President and he was ready with a very large number of questions. The discussion lasted a considerable time, and among the principal speakers were Mr. F. Ladds, Mr. T. Stevenson, Mr. M. Hutchings, Mr. Ivel, and Mr. Lister. Mr. Ivel referred at some length to his own combined system of steam and hot water heating, and pointed out that by his system he could maintain a high temperature in a large Fern nursery with a consumption of not more than one ton of fuel per day. Mr. Lister, from the Lea Valley Growers, stated that the question of heating and fuel consumption had been discussed at some length in the Lea Valley, and a special Committee had been appointed to further consider the matter in conjunction with heating experts. He suggested that a special committee of the British Florists' Federation might be appointed to join with the Lea Valley Committee for the purpose of arriving at the best means of heating for new nurseries and the best means of combining any new system with existing apparatus. Mr. Wallace wound up the discussion shortly after 6 p.m. and thanked Mr. Lister for his suggestion and Mr. Engelmann for his address.

At 6.30 the members and friends, including numerous ladies, dined together at the Connaught Rooms under the presidency of Mr. W. E. Wallace, and spent a very enjoyable evening. The tables were beautifully decorated with Tulips and Daffodils. The musical programme was excellent and the speeches commendably brief. The toasts included "The King," "Success to the British Florists' Federation," "The Flower Industry," "The Ladies," "The President," "The Chairman of Committee" (Mr. D. Ingamells), and "The Secretary" (Mr. C. H. Curtis), and the speakers were Mr. W. E. Wallace, Mr. W. H. Page, Mr. F. Ladds, Mr. G. Shawyer, Mr. J. Lambert, Mrs. Robins and Mr. G. W. Leak.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

FRIDAY, January 18.—*Committee present:* The Rev. J. Cromblehome (in the chair), Messrs. R. Ashworth, W. Beesley, A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, A. G. Ellwood, J. Evans, J. Howes, A. Keeling, D. Losh Thorpe, J. Layton, E. W. Thompson, J. Witham and H. Arthur (secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum The Duchess, a pure white flower of good sucstance, the lip having a yellow crest; *O. arachne, West Point var.*, a large well-shaped flower with reddish-brown blotches: *Cypripedium J. M. Black, var., The Premier* (*Eurybiades* × *Beryl*), a finely formed flower, the large dorsal sepal being beautifully spotted with large, claret-red spots. From S. GRATRIX, Esq.

Cypripedium The President (*Gladiator* × *Eurybiades*). A variety with broad petals, the dorsal sepal being richly and heavily blotched. From Mrs. GRATRIX.

AWARDS OF MERIT.

Odontoglossum ardentissimum, var. Seagull; *O. Corona magnifica* (*ardentissimum* × *Doris*); *Cypripedium Avalanche* (*G. F. Moore* × *Alcibiades*); *C. Prince George* (*Camorin* × *Alcibiades illustris*); *C. Christmas Cheer, C. Memoria F. M. Ogilvie, var. Black Watch.* From S. GRATRIX, Esq.

Odontoglossum Admiral; Cypripedium Odin, Langley var. (*Antinous* × *Becktonii*); *C. Florence Spencer, Chardwar var.; C. Mrs. W. H. Page, var. Grace.* From Mrs. GRATRIX.

Odontonia Thais (*M. Bleuana* × *L'Aiglon*); *O. Dora, Beardwood var.* (*M. Bleuana* × *Odm. Dora*). From Col. Sir J. RUTHERFORD, Bart.

GROUPS.

S. GRATRIX, Esq., West Point (gr. Mr. J. Howes), was awarded a Gold Medal for a group in variety.

A Gold Medal was also awarded to Messrs. CHARLESWORTH AND Co., Haywards Heath, for a miscellaneous group.

Mrs. BRUCE and Miss WRIGLEY, Bury, (gr. Mr. A. Burns), staged a miscellaneous group to which a large Silver Medal was awarded.

Messrs. J. CYPHER AND SONS, Cheltenham, were awarded a large Silver Medal for a collection.

LAW NOTE.

THE SALE OF SEED POTATOS.

CONVICTIONS have recently been obtained by the Board of Agriculture for Scotland against certain Scottish seed Potato merchants for the sale to English customers of quantities of seed Potatos with an incorrect description of the variety.

The Seeds Act, 1920, and the Seeds Regulations, 1922, require, in the case of a sale of seed Potatos, that the seller shall make a statement in writing to the purchaser at, or before, the time of sale or delivery, containing particulars as to the class, variety, size and dressing of the Potatos. The name of the variety in this connection is not taken to be incorrectly stated if it is true in respect of 97 per cent. of the total quantity sold.

In one of the cases recently taken in Scotland, the seed Potato merchants had sold a quantity of seed Potatos ordered by their customer and described by them on their invoice as of the "Ally" variety, which on being grown were shown to include about 14 per cent of other varieties. The defendants claimed that the Potatos were sold as "ware," the word "seed" not having been mentioned in the correspondence between them and their customer. Evidence was, however, brought to show that the purchasers had dealt with the seed Potato merchants for several years, and only in seed Potatos. A fine of £5 was imposed.

In another case a consignment of seed Potatos sold as "Great Scot" proved to contain a very large percentage of rogues. A fine of £5 was also imposed in this case.

In a further case, a consignment sold as "King Edward" was shown to be badly mixed. The defendant pleaded guilty, but explained in extenuation that he had bought the Potatos from another merchant who had given him a declaration that they were 97 per cent. pure. A fine of £5 was imposed in this case.

Obituary.

John Clark.—We regret to record the death, on January 20, at the residence of his son, Venturefair Cottage, Dunfermline, of Mr. John Clark, who was well known as the Superintendent of the Washington Botanic Gardens, U.S.A., and before going to the States was a well-known gardener in Scottish horticultural circles. He was for a considerable period gardener at Parson's Green, Edinburgh, leaving there to become gardener to the Earl of Rosslyn at Dysart House, and was afterwards gardener to Mr. Wemyss of Castle Wemyss, Fife. He was a man of wide horticultural attainments, devoted to his calling, and was believed to have been one of the originators of the florists' Viola. Mr. Clark was in his ninety-third year.

James Douglas.—With sincere regret we record the death, in his seventy-eighth year, of Mr. James Douglas, steward and gardener to Viscount Monck at Charleville, Enniskerry, Co. Wicklow. Mr. Douglas practically spent his life at Charleville, as he went there about fifty-eight years ago, and was regarded rather as a friend than an employee of the family he served. It is well known that County Wicklow possesses a highly favoured climate and contains some famous gardens. Conifers are especially fine in the neighbourhood of Enniskerry, and there are many handsome specimens at Charleville which were raised from seed' sown by Mr. Douglas. These noble trees prompt the thought that the span of man's day's is not so short after all, and Mr. Douglas lived a long and useful life. Although for some years his health had not been good he remained essentially a young man to the last, in spite of his years. Gardening is an ennobling profession, especially with men of parts, and Mr. Douglas was a great gentleman. His warm-hearted gift for friendship, his sense of humour, and his gentle courtesy caused him to be greatly loved by his friends, a large number of whom followed his remains to the graveyard at Powerscourt Church, Enniskerry, on Wednesday, January 23.

Frederick Smith.—The death of Mr. Frederick Smith, of The Ferneries, Ulcely, Lincolnshire, occurred on January 15, from pneumonia and pleurisy, at the age of 51. Mr. Smith was of a retiring and reserved disposition. A very capable business man, in twenty years he had built up a flourishing florists' business at The Ferneries, with a shop in Freeman Street, Grimsby. Mr. Smith started his gardening career at Patshall Hall, Wolverhampton, under Mr. F. Jones, afterwards going to St. James', West Malvern; Hapton House, Accrington; The Mote, Maidstone; Eridge Castle; and Cliffaes, Crickhowell. Mr. Smith leaves a widow, two sons, and a married daughter. The elder son will carry on the business.

Pantia Ralli.—We very greatly regret to have to announce the death of Pantia Ralli, Esq., which took place on the 5th inst, at his residence Ashtead Park, Surrey. The deceased gentleman was well-known in the horticultural world and particularly among those cultivators who are especially interested in Orchids. Of these flowers he had a fine collection at Ashtead Park, where they were cultivated extremely well; specimens from his collection were frequently exhibited at the meetings of the Royal Horticultural Society. Mr. Ralli was in his sixty-second year, and for a considerable period had been a member of the R.H.S. Orchid Committee. As may be seen from our reports of the R.H.S. Meetings, Mr. Pantia Ralli's Orchids frequently gained awards.

TRADE NOTES.

DAHLIA ETOILE DIGOINAISE is a novelty registered in December, 1923, with the International Bureau of Registration of Horticultural Novelties connected with the Federation Horticole Professionnelle Internationale. The raiser is M. L. Martin Fils, rue Nationale, Digoin, and the vendor, Horticulteur March, Grainier (S. & L.), France. In the description it is stated that there are many varieties of this strain, well fixed, not yet in the trade. The flowers are stellate with incurved petals, the different reverse shade of which makes them look peculiar. Awarded prizes at Paris, Lyons, Vichy and Chalon-Sur-Saone.

WE are informed by the Chamber of Horticulture that the International Bureau of Registration of Horticultural Novelties connected with the Federation Horticole Professionnelle Internationale registered in January, 1924, a new hybrid tea Rose named Climbing Golden Ophelia. It was raised by Messrs. William C. Hage and Co., Vuyte Van Nes, Boskoop, Holland, and is described as a sport from Golden Ophelia, producing flowers similar to the original type on very vigorous climbing shoots.

ANSWERS TO CORRESPONDENCE.

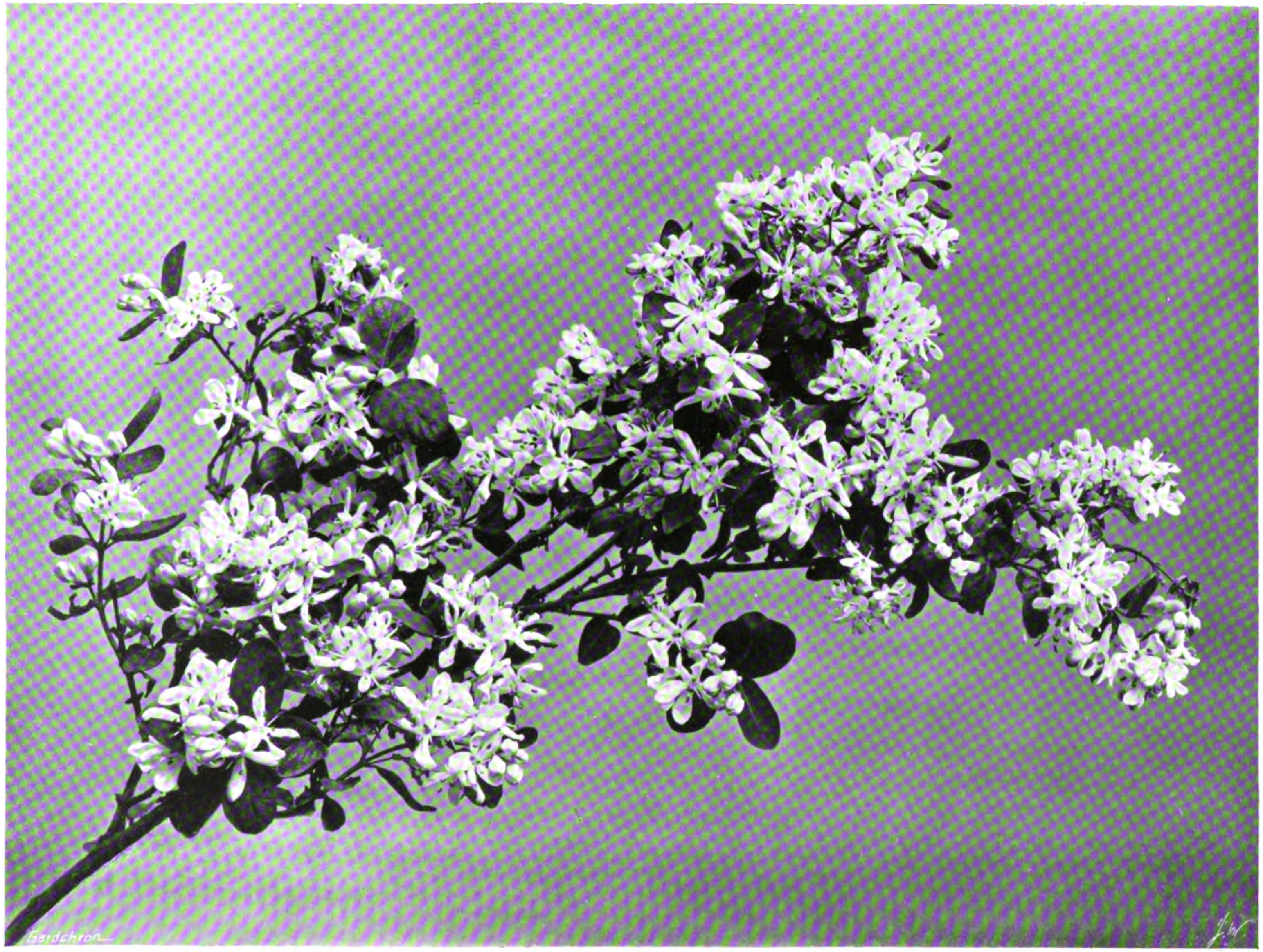
FUCHSIA HEDGE: *P. L.* In order to prevent bleeding of the shoots the Fuchsia hedge should be cut back and the crown covered with dried bracken, straw, coal ash or other litter in order to exclude frost. The protective material should be removed in early April. Blue tits are capable of doing much damage to fruit buds.

MEALY BUGS ON VINE ROOTS: *H. H. C.* The treatment of the soil by means of injections of carbon bi-sulphide may prove effectual. Four or five holes should be made about two to three feet from the rod and about six to eight inches deep. About half an ounce, by measure, of carbon bi-sulphide should then be poured into each hole closing the latter by means of soil directly each operation has been performed. Three or four injections will be necessary at intervals of three days. Great care should be taken in handling carbon bi-sulphide as it is highly inflammable.

MERCURY; *C. T.* The botanical name of this plant is Chenopodium Bonus-Henricus. In some parts of the country is is used in the same way as Spinach. It is readily raised from seeds sown in March, the young plants being transplanted into permanent beds about the middle of September. Other popular names of this plant are Good King Henry, Angular-leaved Goosefoot, and Wild Spinach.

NAMES OF PLANTS: *S. G.* The specimen sent is Moschosma riparium, a Labiate shrub and a native of South Africa. It received an Award of Merit from the Royal Horticultural Society on January 5, 1904, when pot specimens were shown by Messrs. James Veitch & Sons and Messrs. H. Cannell & Sons. It is a very useful subject for the decoration of the cool greenhouse during the winter months. The plant should not be grown in a high temperature, otherwise the growth will become very spindly and the racemes of flowers of poor lasting qualities. *F. O. C.* Salvia rutilans. *R. J. C.*: 1, Salvia rutilans; 2, Begonia fuchsioides; 3, Begonia acuminata. *A. A.* Begonia conchaefolia. *J. F. B.* 1, Arbutus Unedo: 2, Castanopsis chrysophylla; 3, Leucothoë Catesbaei; 4 Ledum palustre.

POINSETTIA: E. H. B. The specimen is a very beautiful form but so closely resembles the varietal form known as rosea carminea that we do not think it sufficiently distinct to deserve a new name.



LONICERA TATARICA.

THE
Gardeners' Chronicle

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Supplementary Illustration.
Lonicera tatarica.

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 40·3°.

Actual Temperature:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 13 10 a.m.: Bar, 30·1°; temp. 34° Weather—Very cold

The Wisley Report.

The many friends and well-wishers of the Royal Horticultural Society will be disappointed with the meagreness of the Report on Wisley contained in the annual publication which records the activities of the Society during the past year. The Wisley Report occupies but little more than three pages of the publication in question. It may be, of course, that a fuller report of the work and progress of the gardens will be issued elsewhere and that the Council takes the view that the *Book of Arrangements* is scarcely a suitable place in which to publish, in any detail, a review of the work carried out in the gardens. Those who are familiar with the varied nature of the operations carried out in a great garden may, it is true, learn from this brief report that much of importance is being done. The Rose trial garden has been laid out and, in designing it, experiment is being made as to the suitability of different plants for use as hedges to serve as backgrounds to the Rose beds. The experiment may amply justify the labour spent upon it, but, on first consideration, it might seem as though this is a form of experiment not likely to lead to very satisfactory results. A garden devoted to the trial of Roses might, perhaps, with a large amount of forethought and with the most careful planning, be made to serve the dual purposes of beauty and utility; but having regard to the necessary uncertainty which must attach to the value and power of "doing" of many varieties quite properly included in the trial, it would seem better, perhaps, to leave it simply as a trial garden—enclosing it, no doubt, with a well kept and beautiful hedge, keeping its grass verges trim, but frankly leaving the garden to serve its original purpose—that of a test of the garden value of the newer Roses. Nothing is more probable than that a variety of hedges, each of restricted extent will be likely not to enhance, but to detract from such beauty as a garden of this kind severely debarred from adventitious ornament may have. The development of the Fruit Testing ground is being proceeded with, and the collections of hardy fruits are being augmented. The main work of the development of the garden appears to have been concentrated in the "seven acres" and much planting has been done there. In this large tract are many fine trees and shrubs and presently this once uninteresting field should become one of the most beautiful parts of the garden. But, it would seem to us, that all these subjects, as well as that of the school of horticulture, in which so many Fellows take an interest, deserve fuller reports than are combined in the few lines devoted to each of these subjects. The same is no less true of the report on the experimental work which is contained in some fifteen or sixteen lines It is true that in a Report of this kind the detailed scientific results achieved in the various researches being carried out at Wisley cannot be included. The *Journal* is the place for them. Nevertheless brief summaries of the scope and chief results so far obtained would be much appreciated by many members of the Society. As it is, all we may learn from the report is that the green-manuring experiments are being continued, as are also the pruning and pollination researches; that investigations are being made on the development of buds in Currants and into sundry diseases of garden plants. The last paragraph of the Report will intrigue not a few. It is headed "Conclusion" and informs Fellows of the Society that the Wisley Committee "has spent much time on the consideration of the relative importance of the trials, the rock garden, and the remainder of the garden." It would seem rather late in the day for such an enquiry—apparently not yet concluded—to be held. To those who know and love Wisley, there would not seem to be any great need for the enquiry. The trials are important and, done, as they are, with meticulous care, though their numbers might be restricted, must be carried on. The rock garden is important and must be maintained in the perfection of condition, and the rest of the garden is no less important as a means of teaching us how to plan our gardens and what to plant therein. But, above all, the function of Wisley is to be beautiful, and nothing done there should detract from this supreme object. Provided this condition is realised, all the other things, trials, and experiments, may be carried on with the utmost dispatch and enthusiasm. Nor would there seem to be any difficulty in making provision for all the varied activities required of an experimental garden whilst preserving and augmenting the amenities for which Wisley is famous. If it be recognised that this is the prime purpose of Wisley, it follows that its fulfilment is likely to be accomplished, not by the periodical solicitude of a Committee — no matter how enthusiastic and well-informed its members may be—but by the inclusion in a leading position on the Wisley staff of a gardener of acknowledged eminence in the practice of horticulture, and one who would give his energies unremittingly to his task. With a proper measure of independence and authority to plan, such a man would be able to rely on the good judgment of the Committee to support his proposals and would relieve their own minds of the apprehension less the matchless charm of the garden, which made it famous and unique, should dissipate itself in improvements. No less curious is the statement in the Report that "three eminent men of science have been asked to advise regarding research work." Are they to plan the researches and to supervise their conduct or simply to suggest the establishment of research scholarships? Surely no one can live and work in gardens without becoming aware of the vast number of problems about plants which are crying out for solution. Nor can anyone, conversant with the laborious and especialised nature of research, doubt but that scholarships to men of proved capacity would help to secure the solution of some of these problems. We hope that when the three eminent men of science have made them, their recommendations will be published by the Society. In the meantime we suspect that the staff at Wisley has plenty to do and are confident that its members will continue to use all their powers to maintain and augment the beauty and usefulness of the gardens.

Our Supplementary Illustration.—In its several varieties, or forms, Lonicera tatarica is the best known and most useful of the bush Honeysuckles. In a wild state its habitat extends from Russia to Central Asia, therefore it is not surprising to find the Tartarian Honeysuckle variable in leaf, and in the colour of the flower, which on different bushes ranges from white to rich red. A deciduous bush, of vigorous growth, in good soils it grows 7 ft. to 8 ft. high, sometimes more, and as much, or more, in diameter, forming an attractive lawn shrub. The varieties of L. tatarica often find a place in the shrubbery border, but if left to grow in a more or less semi-wild state growth is poor and the flowers of no conspicuous merit. To obtain freedom of growth and abundant blossoms, followed by showy red fruits, the ground should be trenched and manured previous to planting and when leafless the bush should have all the old and weak wood removed, leaving the vigorous young branches their full length, unless it is desirable to shorten a branch here and there to maintain the general symmetry of the specimens. In succeeding years an occasional mulching of decayed manure will be helpful. L. tatarica was first introduced in 1852. The form which bears pinkish or pale rose-coloured flowers in May and early June is regarded as the type; the varietal forms are alba, white; latifolia, speciosa and splendens, rosy red; and punicea, rubra and sibirica, with red flowers. Only three are really distinct, *i.e.* alba, speciosa and rubra, to use the most familiar garden names.

Workmen's Compensation in France.—Up to the present, agricultural and horticultural employers have been excepted from the provisions of the laws prevailing in France on the subject of compensation by masters for accidents happening to their employees arising out of their work; on December 15, 1922, however, fresh legislation was passed, which has the effect of bringing agricultural and horticultural employers into line with industrialists, as from the 1st September, 1924.

Ministry of Agriculture.—Mr. Noel Buxton, M.P., The Minister of Agriculture, has appointed Mr. Tom Williams, M.P., to be his Parliamentary Private Secretary (unpaid).

Train Ferries to Belgium.—The train ferries which were found so serviceable during the war for crossing the North Sea are once more to be utilised, not for the transport of war materials, but for the carriage of merchandise between this country (Harwich) and Zeebrugge, in Belgium. The arrangements for this service have been made jointly between the London and North Eastern Railway Company and the administration of the Belgian State Railways, and the work at Zeebrugge is now so far advanced that the ferries will probably start running almost immediately. The boats are fitted with four parallel lines, arranged in such a way that an ordinary goods train of 54 trucks may easily be embarked and disembarked. The advantages of such a system can easily be imagined, especially for goods of a perishable nature such as fruit and flowers, where speed in transit and a minimum of handling is of the first importance.

Proposed Memorial to Victor Lemoine.—The Central Horticultural Society of Nancy desires to pay tribute to the memory of one of its most illustrious members, and to mark his centenary has resolved to raise a subscription in order to erect a monument to the great horticulturist, M. Victor Lemoine, in one of the public parks in the city with which he was so long associated. For the promotion of this memorial the following committee has been formed, with the Prefect of Meurthe-et-Moselle, the Mayor of Nancy, and the President of the General Agricultural Society as Hon. Presidents; M. Boulay, President of the Central Horticultural Society of Nancy, Chairman; M. Thirion, Director of the Public Parks of Nancy, Secretary; M. Marchal, Treasurer; M. G. Grandjean, M. Emile Nicolas, and M. Ch. Grandjean, as members of the Committee. All horticulturists will remember that M. Victor Leomine was a particularly successful cultivator and the raiser of a large number of new plants. Nearly every kind of plant received his attention, and garden lovers and commercial horticulturists throughout the world are now enjoying the results of his work. Over fifty years ago M. Lemoine raised many double Pelargoniums and double Begonias, while Begonia Gloire de Lorraine, now universally grown, will ever keep his memory fresh. Among the host of other plants with which he has enriched our gardens we may mention his double Lilacs, hybrid Philadelphuses, Deutzias, Weigelas, Hydrangeas and Gladioli. Subscriptions to the memorial should be forwarded to M. Chas. Marchal, Treasurer of the Victor Lemoine Committee, 60, rue Pasteur, Nancy, Meurthe-et-Moselle, France.

Fungus Flora of British Woodlands.—At a recent meeting of the Linnean Society, Mr. J. Ramsbotham, O.B.E., M.A., gave an account of the fungus flora of British woodlands. He stated that apart from the part played by micro-fungi which pass at least a portion of their life-history in the soil and are concerned in soil fertility, there have to be considered the perennating mycelia of the large fungi, and the relation of these to the mycorrhiza of trees. Moreover, since fungi are either saprophytes or parasites their distribution is dependent on that of higher plants and consequently each association has characteristic fungous constituents. As is to be expected in the woods most difference is met with between the ground flora of coniferous woods and that of deciduous woods. A large series of coloured slides was shown of characteristic species of Oak, Beech, Birch and Pine woods, and points of biological interest commented on. The manner in which certain species of fungi "follow" a given tree, e.g., Amanita muscaria, Tricholoma fulvum, Lactarius turpis and Cortinarius hemitrichus under Birches is a matter which requires further investigation.

Mr. E. A. Bowles.—Amongst the recipients of the Veitch Memorial Medal at the annual meeting of the Royal Horticultural Society on Tuesday last was Mr. E. A. Bowles, to whom the medal was presented in gold, and we take advantage of this occasion to publish his portrait and add a few interesting particulars concerning this distinguished amateur horticulturist. Mr. Bowles is known to everyone who attends the meetings of the Royal Horticultural Society, for he gives much of his time to work in connection with the R.H.S., and in addition to being a member of the Council he is chairman or a member of several of the committees. He is chairman of the Narcissus and Tulip Committee, vice-chairman of the Scientific Committee, vice-chairman of the Floral Committee, vice-chairman of the Wisley Committee, a member of the Library Committee, a member of the Board of Examiners, a member of the Publications Committee, a member of the *Botanical Magazine* Committee, and a member of the *Pritzel* Revision Committee. Mr. Bowles takes a keen interest in plants, and his garden at Myddelton House, Waltham Cross, is one of the most interesting in the country, for it is filled with rare and choice species. He has told the story of his garden in the three books entitled *My Garden in Spring*, *My Garden in Summer* and *My Garden in Autumn and Winter*, works that contain a vast amount of information about plants written in a most interesting style, and valuable because they deal with the first hand experiences of the writer. No more interesting description of plants has been published than the chapter in *My Garden in Spring* entitled "The Lunatic Asylum," in which is described all manner of abnormal plant developments and most of the teratological specimens referred to were collected by Mr. Bowles himself. Like most keen gardeners, Mr. Bowles has a leaning towards a few special plants, and Crocuses and Snowdrops are his favourites, indeed, he may be regarded as the greatest living authority on Crocuses. He has also a remarkable collection of hardy Cacti, the finest, probably, in the United Kingdom, whilst the rock garden at Myddelton House is of quite an exceptional character. Those who have a personal friendship with Mr. Bowles know that he is a man of great amiability and has a very charming manner, whilst those who have only a slight acquaintance with him realise that he is one of the pleasantest of men and ever ready to place his knowledge and service at the disposal of others.

MR. E. A. BOWLES, V.M.H.

Gardens at the Ideal Home Exhibition.—At the Ideal Home Exhibition, which will be opened at Olympia by H.R.H. The Duchess of York, on February 28th, one of the main features will be the rock and formal gardens exhibited by some of our leading landscape gardeners. The gardens, some twelve in number, will be arranged in the extensive annexe, the walls and roof of which are to be decorated so as to bring the building into keeping with the exhibits. Other sections of interest include poultry and bee keeping. gardening, photography and a hall of handicrafts. The Exhibition will remain open until March 22nd.

The Queen's Dolls' House Garden.—One of the wonders of the British Empire Exhibition at Wembley will be the Queen's Dolls' House. In the building, fitting and furnishing of this miniature palace British artists have considered it an honour to contribute of their best, consequently the pictures, furniture, hangings, pavement, books, bookbinding, etc., will represent the finest examples of artistry of our time, and the whole will form a splendid representation of the art of the period. Nor has the art of gardening been omitted; indeed, Her Majesty is so fond of flowers and gardens that her wonderful Doll's house would not have been complete in the absence of that home setting which only flowers and plants can provide. The south front garden (Fig. 34, p. 84) has been designed by Miss Gertrude Jekyll, V.M.H., and the plants made by Miss Beatrice Hindley. The latter, though artificial, are so exquisitely made that in the photograph it is difficult to imagine they are not "all a-growing and a-blowing." The plants and flowers presented in this miniature formal garden are Rhododendrons, Agapanthus, Liliums, Roses, Irises, Magnolia grandiflora, Pinks and Fuchsias. The garden seats, tubs, and vases are all replicas of the best modern designs in these items of garden furniture.

Dearer Potatos.—In reviewing the agricultural conditions on January 1, *The Agricultural Market Report*, issued by the Ministry of Agriculture, states that the most prominent feature of the month of January was the rapid advance in Potato prices. During the last two months of 1923 prices at the wholesale markets rose by nearly £1 per ton, while January prices averaged nearly £2 per ton more than those of December. Potatos are now considerably more than twice their pre-war price, a striking contrast with the position in January of last year, when wholesale prices were practically at pre-war level. No marked shortage has been experienced in the markets, and the recent advance in prices is probably in part due to anticipation of and the actual effects of the railway strike. Potatos are estimated to represent normally about one-twentieth of the total annual sales of produce from farms in this country, and two points out of this month's rise of five points in the general index number are thus accounted for by the increase in Potato prices.

Weather at Tarporley, Cheshire.—The rainfall at Tirley Garth Gardens, Tarporley, Cheshire, for the year amounted to 34·35 inches, or 4·37 inches more than in 1922. The heaviest rainfall occurred on April 12, when ·92 of an inch was registered. June was the driest month with ·73 of an inch. In October the rainfall amounted to 4·14 inches, being the wettest month of the year, with 25 rainy days. There was 245 days in which ·01 of an inch or more was registered, and 165 rain days in which ·04 of an inch or more was registered. The driest period was from March 9 to March 25, when seventeen dry days were recorded. The hottest day was on July 12 when the temperature rose to 87° in the shade. The coldest days were on November 23 and 29 when 10° of frost was registered on each night. From July 23 to the end of the year the weather was cold, wet and sunless.

Presentation to a Secretary.—At the annual meeting of the Southend and District Horticultural Society, the hon. secretary, Mr. H. King, was presented by the members with a clock. In the absence of the president, Mr. Alex. Steel, through indisposition, the presentation was made by Mr. Arthur Keeling, a vice-president and superintendent of the Southend Public Parks, who asked Mr. King to receive the gift as a token of the high esteem in which he is held by the society. The president sent a letter expressing regret at not being able to attend, and included with his message a gift of cigars and cigarettes for those present at the meeting. The exhibition of the society on September 1 last was stated to have been the best local show held in Essex during 1923. It was decided to hold a show on September 7, and a dance and social gathering will be held on the 19th inst. to raise money for the prize fund.

Appointments for the Ensuing Week.—Tuesday, February 19: Croydon and District Horticultural Society's meeting: Winchester Horticultural Society's lecture. Wednesday, February 20: Glasgow and West of Scotland Horticultural Society's meeting; Morley and District Paxton Society's meeting.

"Gardeners' Chronicle" Seventy-Five Years Ago.—*The Edinburgh Winter Garden, Inverleith Row.*—Mr. M'Nab will not quit the charge of the Experimental Grounds of the Caledonian Horticultural Society at Inverleith, without leaving behind him a testimony of his attention to the advancement of public taste in floriculture, in the elegant structure just completed from his original designs by Mr. Drummond, as contractor, on the summit level of the garden, introducing, for the first time in Scotland, a fashionable promenade similar to the *Jardin D'Hiver* at Paris. We visited this new temple of Flora last Saturday and found portions of the intended quadrangle, 126 feet long by 30 feet broad, not only completed, but in a full blaze of internal beauty, from such an array of resplendent Rhododendrons and chaste Camellias, along with showy flowering shrubs and rare exotic plants, as we could not possibly have anticipated in the dead season. Mr. McNab explained that, with a view to the opening of the promenade, this profusion of bloom has been brought on by forcing, and to this might probably be attributed the extraordinary purity of colour by which all the blossom was pervaded. But, indeed, although the supply of plants in bloom at the Winter Garden must necessarily rob the other conservatories and hot-houses of their decorations, the plants were never before exhibited to the same advantage. We must particularise that extraordinary plant of the Himalayas, the Arum cordatum, the singular flower of which, though fast shrivelling up, displays the remarkable frond of miniature leopard's skin of russet and gold, fully a foot in length. The intermediate spaces, which, in most conservatories, are given up to atmospheric vacuity, are, in the houses of the Experimental Garden, ingeniously hung with fine suspension plants, fed by a water-glass and worsted syphon. One of these, a crimson Camellia, of two years' standing, is a thriving plant for such airy quarters. The *coup d'oeil* presented by the spacious front passage, along which the principal flowering specimens are arranged in a stand, beside the delicately attentuated pillars of fluted iron supporting the roof, forms a magnificent vista. Mr. M'Nab has exhibited immense tact in facing the structure to the north, by which means he not only calculates on preserving the plants longer in bloom, but on affording a more uninterrupted light to the public arcade, here glazed over with panes of large size, without burning the plants with the glass (as now complained of so frequently in England), since the south and other parts of the structure, through which the sun's rays are to act, are glazed with small pieces. *From the Scottish Agricultural Journal, Jan. 30. Gard. Chron., Feb. 17, 1849.*

FLORISTS' FLOWERS.

GLADIOLUS SURPRISE.

This Gladiolus is one of the oldest varieties of the G. gandavensis strain, having been raised in France by Mons. Malet before 1863, and thus, possibly, is the same age as G. brenchleyensis, which is recorded to have been obtained by Mr. Hooker, at Brenchley, Kent, in 1860. It may be added that G. gandavensis (type) was obtained in Belgium in 1840.

It is a fact worthy of notice that these three Gladioli, the oldest in cultivation, have survived during such a long period while many hundreds of younger varieties have disappeared.

G. gandavensis (type) is still grown in some gardens, viz., in the collection of Messrs. Vilmorin at Verrieres, and I met with it quite haphazard in a market at Tours last summer, mixed with G. brenchleyensis. This last is still valued on account of its vivid red colour, and I remember having seen it in Messrs. Walpole's gardens in Ireland, so tall (4–5 feet) and so brilliant that I could not tell from a little distance what it was.

G. Surprise has long been popular in France as a cut flower in country towns and it is now getting a new value since the growers of the French Riviera have taken up its cultivation as a winter flower and succeeded in bringing it into bloom from December to spring. Some bunches of spikes were seen in the florists' shops of Paris early in the new year in 1922. In 1923 G. Surprise made its appearance in the beginning of December, and in such quantity that almost every florist exhibited it and used the flowers for the cheapest bouquets. I should not be surprised if it was also on the market in London. [A few spikes were seen in Covent Garden late in 1923.—Ed.]

G. Surprise is barely two feet in height, its stem is thin, and the spike rather short and compact. The flowers are small, of Currant-red colour, closely packed, erect, and all faced one way as in the old and formal named varieties. Compared with the large-flowering modern varieties of G. gandavensis, G. Surprise is a poor thing, hardly worth growing, but it has points of merit which both growers and florists appreciate. First of these, perhaps, is that it is a robust grower, resisting degenerating influences. It produces very few cormlets, but most of its corms produce two or sometimes three others every year; it increases quite regularly, and no doubt this is one reason why it is so widely grown in France. Secondly, its flowers being small and closely set on the spike, they withstand packing and handling much better than any other variety, and this is a point of high merit in cut flowers for market. It is also cheap. Thirdly, it seems to be the only variety that the southern florists have been able to bring into flower in quantity for the new year, for they have been trying for a long time to use the Gladiolus of the gandavensis class as a winter flower.

Before bringing this note to a close, I would remark that most of the oldest varieties, and among them those named above, produce few cormlets. Some more recent varieties, viz., Princeps and Eclaireur, although very prolific for some time after their introduction have increased at a steadily decreasing rate and have become more difficult to grow. If this fact was general it would lead to the conclusion that corm production is a character of youth, and it may account for the disappearance of many hundred varieties that have been lost or abandoned during the last half century.
S. Mottet.

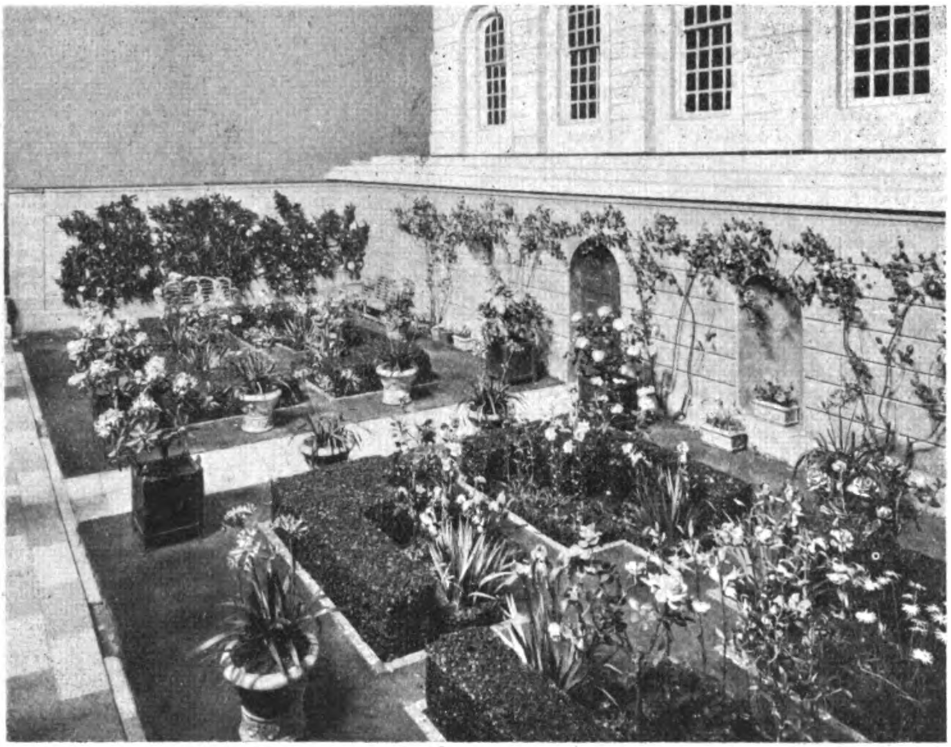

FIG 34.—THE GARDEN OF QUEEN MARY'S DOLL'S HOUSE (SEE P. 86).

DOUBLE - FLOWERED IRIS.

A double form of Iris germanica has been raised by Mr. George Francis, an Iris specialist of upper Hawthorn, Victoria, Australia. The flowers are fully double, possessing six standards, falls, and stigmatic organs, instead of the usual three, but normal in all other respects. It is said to be a very free flowering and highly decorative Iris.

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

Seedling Dendrobiums.—These will commence to grow early in the year, and the necessary re-potting should be done when the new roots are pushing from the bases of the young growths. The plants should be placed in a light position in the house; they will grow well in small pans with wire handles attached, and suspended from the roof-rafters. The handles may be utilised as a support to the pseudo-bulbs and new growths. A mixture of equal parts of Osmunda fibre and Sphagnum moss, cut into rather short portions, provides a suitable rooting medium. The plants should be grown in a warm house and afforded water in moderation.

Mexican Laelias.—Plants of the typical or dark forms of Laelia anceps will by now be passing the flowering stage; the white varieties such as L. a. Schröderiana and L. a. Sanderiana are generally at their best at a later period. After the flower spikes are removed the plants usually develop roots from the base of the last made pseudo-bulb, and directly these appear the plants may be repotted or top-dressed. Any that are in receptacles sufficiently large to accommodate them for another season need not be disturbed, but if the old soil is decayed it should be carefully removed with a pointed stick and the dusty particles washed out, so that the drainage will be cleansed and made perfect, and fresh materials added. Coarse Osmunda-fibre from which all the earthy particles have been shaken away provides a suitable compost. The fibre should be pressed firmly around the base of the rhizomes of the plants. Specimens that have outgrown their receptacles may, provided there are numerous pseudo-bulbs behind the leading growths, be broken up and made into shapely plants. Retain two or three pseudo-bulbs behind each lead, and, in re-potting, keep the rhizome of the plant just on a level with the rim of the receptacle.

THE FLOWER GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Dahlias.—The value of these plants from the decorative point of view is incontestible and it is not surprising that their popularity continues to increase in spite of the fact that in occasional years early autumn frosts seriously interfere with the floral display. If it is desired to propagate, plants of those varieties needed should be brought from their winter storage and placed in moderate heat. The roots should be only three quarters covered, leaving the crowns free, and they should be stood in a light position to encourage the growth of short-jointed, firm shoots. When these are about three inches long they may be taken off close to the crown, inserted in small pots in sandy soil and placed in a propagating case, in which they will root freely. As soon as they are rooted the plants should be grown on in cool conditions and re-potted as necessary.

Ericas.—Few other sections of plants provide floral displays over such a long period as the hardy Heaths, for with a judicious choice of varieties the Heath garden may be kept gay during the greater part of the year Where rearrangements or additional planting are contemplated the present is a good time to carry out this work. Cuttings struck under bell-glasses in the late summer of 1922 and grown in nursery rows since last spring are now fine, strong plants and ready for their permanent positions. If the ground has been recently prepared it should be thoroughly consolidated before planting begins, for firmness at the roots is an essential factor to success. Where the site of the Heath garden is naturally undulating it is easier to produce charming effects than when the surface is level, but in the latter case much may be done by grouping the taller growing varieties and surrounding them with carpets of the dwarf kinds.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Early Vinery.—The earliest Vines are making good growth, and the laterals should be stopped at two joints beyond the bunch to be retained, removing bunches that are not required. In stopping the laterals it is not wise to suppress them all at the same time, but to pinch out first those that are growing most freely, and to continue stopping as and when it is found necessary to do so. In cold, sunless weather great care should be exercised against an excess of atmospheric moisture in the vinery, for it would favour the development of the warty appearance on the underside of the leaves, known as intumesence, which is a check to good cultivation. As soon as the vines are in flower, discontinue damping the floor in the early morning, and maintain a drier atmosphere during the day; this will ensure a freer distribution of the pollen, but when closing the house, if the outside conditions are favourable, the floor may be damped over with a fine spray from a rose can. Guard against water coming in contact with the hot-water pipes as this would cause a steamy atmosphere, which is not to be recommended at any stage of growth.

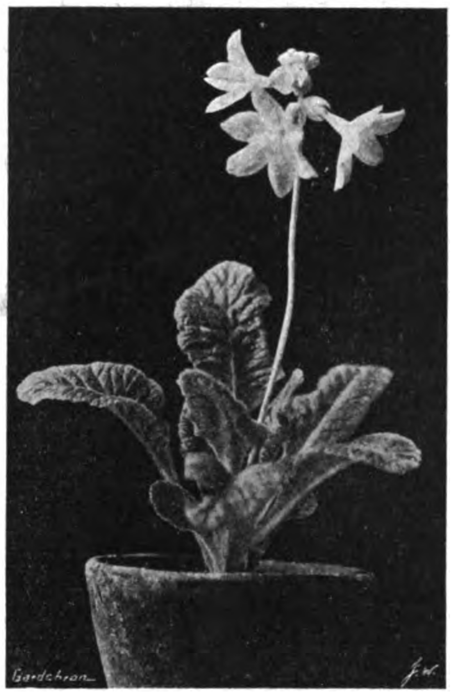

FIG. 35.—PRIMULA SIAMENSIS. (SEE P. 89).

Second Vinery.—The vines in this house will now be breaking into growth and any superfluous buds should be carefully removed. For the time being, and until the bunches of fruit can be plainly seen, it will be wise to leave two breaks on each spur. Guard against high night temperature, 55° to 60° being the most suitable at this stage of growth. Admit top-air on all possible occasions and on bright days syringe the vines overhead with tepid rain water. Close the house early to conserve as much of the sun's warmth as possible.

General Remarks.—Every opportunity should be taken to complete the work of cleansing the fruit houses. The work of top-dressing the borders, and training in the shoots of all Peach trees, should be completed at an early date. Ventilate the houses freely both day and night whenever the weather conditions are favourable for doing so. This will help to retard the growth of both Vines and Peach trees, which is especially desirable in the case of those that are intended to be grown without the aid of fire-heat.

PLANTS UNDER GLASS.

By F. J. CLARK, Gardener to Lt.-Col. SIR GEORGE HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Forcing.—In establishments where there is a constant demand for cut flowers and flowering plants the gardener is often considerably taxed at this time of the year to maintain a succession. With the lengthening days, however, and the prospects of increasing sunlight the task becomes less difficult. Flowering shrubs, such as Azalea mollis, Lilacs, Prunus species, Forsythia, and Deutzias, prepared for forcing during the autumn and plunged out-of-doors, should be brought into the forcing pits in batches, according to the demands of the establishment. A good place in which to start them is a heated pit or frame that has sufficient depth to allow for head-room, and contains a bed made of stable litter and fresh tree leaves in equal proportions. This material should have been previously well mixed and turned several times at intervals of a few days. After the bed is made up a little air should be admitted to the pit both night and day to allow the gases of fermentation to escape. The plants should be brought into the house when the heat of the bed has declined until it provides a mild warmth. Should the soil in the pots have become loosened it should be made firm, and any of the plants that are dry at the roots should receive a thorough watering before being placed in the pit. A temperature of 45° to 50° at night will be sufficient at the commencement of forcing. Syringe the plants daily with tepid water, and protect the frames at night with mats. When the buds are swelling freely the temperature may be increased gradually, or the whole of the plants may be removed to a warmer house, when the frame will be available for a successional batch from outside. Flowering shrubs treated this way in the early stages of forcing will generally start into growth more evenly and kindly than when placed direct into larger and more airy houses. A pit thus prepared also provides a capital place in which to start batches of Hyacinths, Tulips, Daffodils, and Spiraeas.

HARDY FRUIT GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Planting.—February is a suitable month to complete arrears of planting, provided the work is done in favourable weather. As the days become longer, and the sun increases in power, the ground will become warmer, thus promoting quicker root action. Bush fruits, such as Gooseberries and Currants, may be planted in rows made six feet apart, and the plants themselves set four feet asunder in well trenched ground. The ground, if it has been trenched in the early winter and left in a rough condition, should be forked over, at the same time working in a liberal amount of soot and wood ash. Lightly fork the ground when the planting is finished, and defer the pruning of the bushes for a fortnight or so until they become established. These late planted bushes should not be allowed to fruit this season, rather let them make shapely specimens and develop fruit buds for next year's fruiting. A light mulching of half-decayed manure when the bushes are pruned will help to conserve the moisture in the soil. Other kinds of fruits may also be planted when the ground is in good workable condition. Standard and half standard trees should be staked securely against the strong winds of March, and these will also be benefited by a light mulch of manure.

Raspberries. — Raspberry stools may be planted now with every prospect of success. Although the Raspberry is surface rooting, the ground the plants are to occupy should have been trenched ere this in order to ensure free drainage, for the Raspberry resents a stagnant, badly drained soil, and soon deteriorates if planted in such conditions. Plant the canes one foot apart in rows, allowing a space of five feet between each row. When the planting is finished, cut each cane down to within four inches of the ground. Lightly fork the surface soil and apply a mulch of well-decayed manure. Strong shoots will develop and these should be tied to wires placed about six or eight inches apart fastened to posts about six feet high. If new galvanised wire is used, coat it with paint before tying the shoots to it, and do not tie the shoots too tightly.

THE KITCHEN GARDEN.

By Walter Y. Staward, Gardener to Mrs. John Feeney, The Moat, Berkswell, Warwickshire.

Parsnips.—To obtain extra fine Parsnips, select a good piece of ground clear of trees and make special stations for sowing the seed by means of a crowbar. The rows should be eighteen inches apart and the holes made 12 inches asunder. Make the holes three and a half feet to four feet deep, taking care that no rough material falls into them. They should be filled with a mixture of good loam, leaf-mould and sand after it has been passed through a fine sieve and mixed with Vaporite. Care should be taken to fill the holes completely, working in the the prepared soil by means of a long stick. When the holes have been filled, place a small peg in the centre of each to mark the site for sowing the seeds.

Runner Beans.—The place selected for growing Runner Beans should be marked out and a trench 3 feet wide made; if a second row is required this should not be closer than 6 feet to 8 feet from the first one. Remove a couple of spits of soil out of the trench and well loosen the bottom with a fork. Then place plenty of farmyard manure in the trench, or if this is not procurable, plenty of grass and leaves well mixed together. The soil that is placed back over the manure should have bone-meal scattered liberally all over the surface. When the trench has been filled in, a stake should be placed in the centre at each end as a guide as to where the Beans are to be sown or planted.

Onions.—The site of the Spring Onion bed should be forked over during the first favourable opportunity and the surface afterwards made as level as possible. When in good workable condition the ground may be trodden both ways, then raked again with an iron rake. If the seed is to be sown on the land direct a distance of 16 inches between the rows will be ample. Sow evenly along the lines and not too thickly, as this will save labour in thinning the seedlings. Autumn-sown Onions may be transplanted in rows made the same distance apart, but allow 4 inches to 6 inches between the plants in the rows. See that every Onion that is transplanted is healthy and strong, and place it so that the bulb rests on the top of the ground, but above all plant the roots firmly.

Asparagus.—More roots of Asparagus should be lifted and placed in the forcing house, working in around the clumps plenty of well-decayed Beech leaves or short litter.

PLANTS NEW OR NOTEWORTHY.

PRIMULA SIAMENSIS.

The illustration on p. 88 (Fig. 35) represents the first seedling of Primula siamensis to flower under cultivation. This species is a native of Northern Siam and was raised in the Cruikshank Botanic Gardens, Aberdeen, from seeds sent home by Dr. A. F. G. Keer. The pale lavender colour of the flower pales towards the centre of the limb and there is no distinct "eye." The leaves are more or less erect, up to 7 c.m. long, and the whole plant grows to a height of 13-15 c.m. Primula siamensis is closely allied to P. nutans and is a native of a hill with a flora possessing a strong Yunnanese element: in fact P. siamensis may be regarded as a geographical form of P. nutans, just as an Androsace from the same locality may be regarded as a form of A. axillaris. One feature of P. siamensis is the delicate but very pleasant fragrance of the flower—exactly that of fresh White Clover.

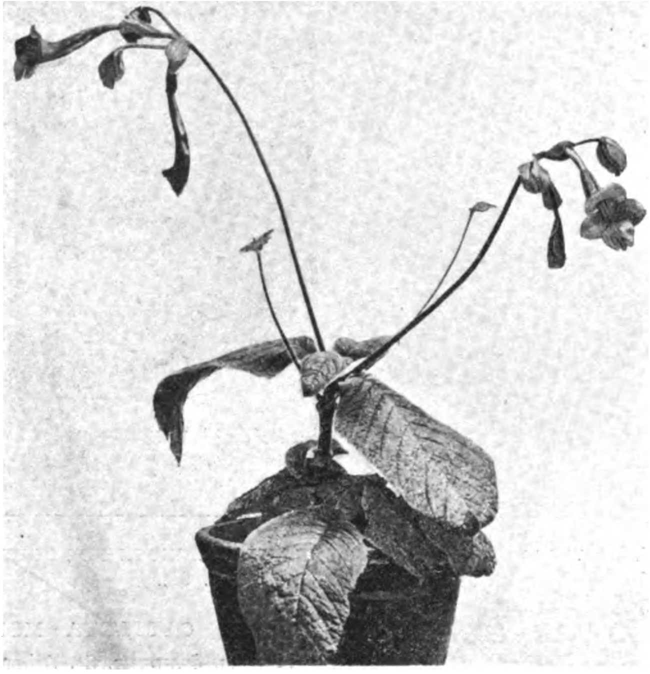

FIG. 36.—DIDYMOCARPUS WATTIANA.

DIDYMOCARPUS WATTIANA.

This new species of Didymocarpus was described in the *Gardeners' Chronicle*, lxxii. (1922), page 363, from a living plant on the occasion of its first time of flowering. The illustration now reproduced (Fig. 36) represents a plant which flowered in the Cruickshank Botanic Gardens in 1923, but unfortunately it does not show the plant quite at its best, as, later, over a dozen flowers were open at one time. In the bud stage the flowers are a dark wine colour with a very lustrous surface: when fully open the colour is somewhat paler, passing from pale wine colour at the base to a rich wine colour at the tip. The calyx also has a very lustrous surface. The corolla is about 7 c.m. long, while the inflorescence is carried well above the foliage. The leaves are about 10 c.m. long and there is always a more or less distinct stem from 6-8 cm. in length. The leaves are thick, rigid, deeply veined and dark green. In the Cruickshank Botanic Garden, Didymocarpus Wattiana flourishes under similar treatment to that given to Streptocarpus. *W. G. Craib, Aberdeen.*

[Didymocarpus Wattiana seems to offer promising material for hybridising with Streptocarpus, and if such a cross can be obtained, the branching habit of Didymocarpus and the rich colour of its flowers, should add valuable features to a new race of hybrids. Eds.]

HARDY CYCLAMENS.

The hardy Cyclamens are a most delightful group of hardy plants, deserving of far more attention than is generally given to their cultivation for furnishing partially shaded rockeries and for naturalization in the partially shaded portions of the shrubbery borders.

Their habit of growth is neat, and their flowering seasons merge so successionally into one another that their time of flowering covers quite a lengthened period. The leaves, of stiff, leathery texture are very ornamental; some having perfectly round olive-green leaves, whilst others are so prettily marbled or variegated as to resemble the delicately veined Anoectochilus in beauty. The dainty flowers rise a few inches on slender stalks from the crown of the corm, and above the foliage, forming quite a bouquet of sweetly-scented blossoms.

The position suitable for hardy Cyclamen is a partially shaded nook in the rockery, and they should be planted in a deep, well-drained, sandy soil, composed of equal parts loam, peat and leaf-mould, and well broken mortar rubbish. The corms should be planted during September and covered with about an inch of soil. Although perfectly hardy, it is advisable to apply a mulch of coco-nut fibre during very severe weather in cold districts. They are also well adapted for naturalizing in partially shaded positions under tall trees, interspersed with Anemones, and if not disturbed, will soon form a most delightful effect.

The species and varieties are enumerated in alphabetical order, with seasons of flowering:—C. Coum, olive-green leaves, effulgent brilliant crimson flowers, January to April; C. C. album, flowers pure white; C. europaeum, one of the most beautiful, flowers crimson, sweetly scented, August to September; C. hederaefolium (C. neapolitanum), the Anoectochilus-leaved var., forms masses of marbled foliage; flowers bright rose, September to November; C. h. album, flowers white; C. ibericum album (C. Atkinsonii), flowers white, pretty crimson centre; February to April; C. ibericum roseum, pretty soft pink flowers, marbled foliage; February to April; C. ibericum rubrum, deep rosy purple flowers; C. repandum, deep rosy crimson flowers, a pretty Italian species, March to June, and C. r. album, flowers pure white. *Wm. Logan.*

ALPINE GARDEN.

ŒNOTHÈRA ROSEA.

If Œnothera rosea has a fault, it is in its rapidity of growth, for by means of underground stems it will very quickly cover a considerable area and consequently should not be placed adjacent to small or choice alpines. For a warm, sunny position on the higher reaches of the rock garden it is valuable and it will give freely of its pink blooms over a period from June to the advent of the autumn frosts.

It resents rich soil and is quite happy in moderately poor and stony ground. It has proved quite hardy here, although it may be advisable to afford some light protection during a severe winter. Attaining a height of from nine inches to one foot, this handsome Œnothera is most easily propagated by means of cuttings inserted during the late summer. *R.E.A.*

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM MARGARITA.

Messrs. Cowan and Co., Southgate, send a first flower of a very beautiful hybrid raised by them between O. Doreen and O. eximium. The flower is large, broad in all its parts and slightly fringed: the segments are wax-like in substance, the ground colour of pure white being evenly marked with spots and wavy lines of deep claret-purple. It probably has O. Aglaon in its ancestry, from which was developed O. Mirabeau var. Mastiff, and its continuation of improvement O. Everest, both stately novelties of Messrs. McBean, and to which section Messrs. Cowan's fine novelty is a worthy addition. The influence of O. Wickeanum albens is seen in all this class and its fine substance and clear white ground is intensified in the progeny.

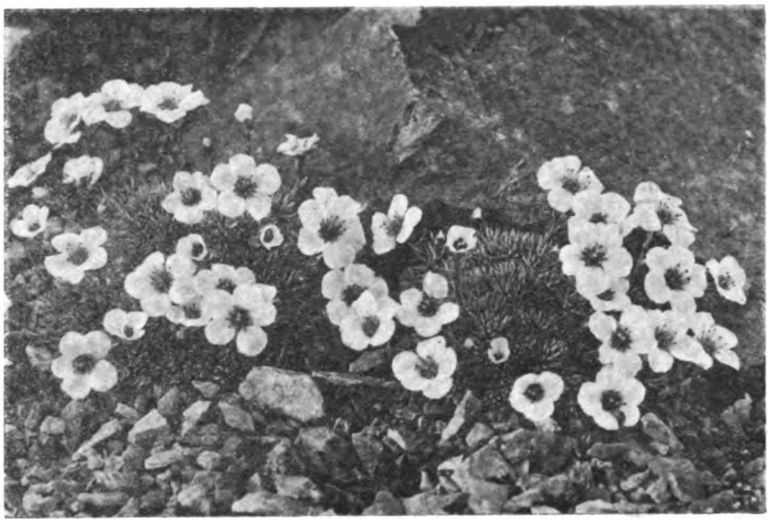

Fig. 37.—Saxifraga Burseriana magna, flowering in the Glasnevin Botanic Gardens. (See p. 91).

HARDY FLOWER BORDER.

VERONICA TEUCRIUM DUBIA.

This beautiful Speedwell is commonly called V. prostrata or V. rupestris. The plant in the familiar blue of the type is well-known and warmly appreciated, but the golden-leaved form usually listed as "var. Trehane," is not common in cultivation, yet it deserves to be, for it is a charming plant, as vigorous as the type and the lovely azure spikes of blossom are extremely effective against the clear yellow of the foliage. Moreover, the leaves of this form are not only larger than those of the typical species but they attain their brightest colour during the flowering season, reverting to a greener hue towards the end of summer.

There is a very neat and compact form of V. Teucrium dubia which, being a miniature of the type, is a good subject for small rock-gardens where space is a consideration, and there is also the white-flowered variety, alba. My experience of this latter has not been a happy one since it appears to be entirely wanting in the splendid vigour of the ordinary blue form. Others may have been more fortunate, but we are constantly having to replace this very lovely white Veronica, which appears to resent our humid winters and usually "dies off" during its second season, that is, if it has managed to struggle through its first. The beautiful rosy pink form is hardly any more robust, and if one may judge by the difficulty experienced in getting these varieties from nurserymen it would appear that traders lose the plant also. *J.*

CATTLEYA MODEL.

Messrs. Sanders, St. Albans, send a flower of their latest novelty in Cattleyas, raised between C. chocoensis and C. Suzanne Hye de Crom, the new comer surpassing in floral beauty and size both of its parents. The sepals and petals are blush-white, the petals being as broad as they are long: the crimped margin is slightly tinged with Primrose colour. The lip, which is well rounded in front, is closely crimped and fringed at the margin. The front lobe has a central blotch of bright violet-purple. the median area being chrome-yellow, the base has short, rose-purple lines. The new variety is delicately scented.

The flower sent was cut from a small plant, and it may be expected that blooms will be even finer from older and stronger specimens.

ODONTOGLOSSUM CRISPUM ZENOBIA.

No man is better qualified to give an opinion on the matter of a "crispum" than Mr. H. T. Pitt, and he considers the charming O. crispum Zenobia which he had in his group at the Royal Horticultural Society on January 29, the finest blush-white form ever staged, and the majority of the Orchidists present agreed with him, although the Committee failed to give it a distinction. It is doubtless a home-raised seedling of the same type as Messrs. Charlesworth have made famous, a strain which has flowers larger and finer in substance than any imported O. crispum.

The blotched flowered crispums, fine though those of the Pittianum class are, have been surpassed by the hybrids, but the white and blush plain crispums are not approached by any of the hybrids.

NOTES FROM A WELSH GARDEN.

The most notable flowering shrub in the garden to-day (February 4) is Lithospermum rosmarinifolium, which is covered with its lovely blue flowers, the bluest and largest of the race. The foliage is also good, being denser and of a fuller, glossier green than that of Rosemary which it is supposed to resemble. This splendid Gromwell has been in bloom since early January, and although its flowers have been severely injured once or twice by frost there seems always to be plenty of buds in reserve and the plant speedily recovers its full beauty.

On the same westerly slope Cytisus racemosus and C. monspessulanus are beginning to show their yellow blossoms, and Coronilla glauca, with leaves of an attractive soft emerald, will soon be blazing with an even finer gold than either of the Brooms possess. Here also, in the foreground, the soil being warm and gritty, are some of the more tender, early-flowering Sedums, the most noteworthy of these at the moment being the Mexican species, S. Palmeri, with large clusters of Orange-yellow blossoms and a distinctly glaucous, fleshy foliage. This is a very beautiful plant, of good habit, and it has been subjected to 12–15 degrees of frost here without injury.

Rhododendron praecox was in full flower ten days ago, and the fresh, rosy-purple of a woodland group of this pretty hybrid blends very happily with a distant flush of Erica darleyensis. R. Nobleanum is breaking into blossom, its bold crimson having a good background in the Ivy-clad slope in which the shrub is growing. R. Silberrhad is also opening its beautiful silver-pink clusters which will stand wintry weather remarkably well, and if mild conditions continue R. ciliatum will be in flower before these lines are in print

Berberis sanguinea, always an attractive shrub, grows increasingly interesting now. Though small, the vivid crimson stalks of the opening blossoms, which latter daily become more yellow, are quite a conspicuous feature in sunlight, and the foliage has assumed a slightly glaucous tint which is very pleasing. The red which precedes the orange in B. Darwinii is often of so fiery a hue, and makes such a telling combination with the rich, glossy green of the foliage, that the full-blown Lemon-yellow clusters of B. Aquifolium near-by sink into insignificance. But all these are unusually forward, as are the leaves which are already expanding on some of the Exochordas, on several of the deciduous Cotoneasters, ornamental Plums and Deutzias. Spiraea Thunbergii is actually in full leaf and several others of this and other genera are taking risks which may yet cost them dear.

In the woodland Anemone Hepatica in several colours is in bloom. The Winter Periwinkle (Vinca diffusa) is still flowering with a prodigality not to be excelled by the cheerful little Polygala Chamaebuxus. There are also some pretty drifts of Crocus, C. Tommasinianus being very dainty in a cool blue-lavender, with rich, orange-red stigmata. Some of the Erythroniums have already appeared in mottled leaf and drooping bud, and that quaint little herb, Hacquetia Epipactis has raised its heads of yellow flowers in a half shady place, where blue Primroses and two or three of the old doubles (yellows, whites and reds) are also flowering.

Among the Saxifrages in the rock garden some broad masses of S. apiculata in both yellow and white, S. Grisebachii, S. kewensis, S. bursiculata and the ever-reliable S. Boydii alba are in full flower, and a few days more will bring into colour two or three representatives of the oppositifolia set. In a deep, cool bed of leaf-mould and grit the lovely Sisyrinchium grandiflorum is showing the matchless violet of its pendant bells, and close by, at the tips of a similar sheaf of grass-like foliage, are hanging the half-opened, satiny flowers of the variety alba, resembling big pearl-like Snowdrops delicately suffused with palest purple.

Daphne blagayana, whose bed of old, black leaf-mould, grit and stones is growing into the resemblance of a cairn owing to the annual dressing of these materials, is giving us the first whiffs of its delicious perfume. Lithospermum prostratum and the variety Heavenly Blue, which have been dotted with a few blooms all the winter, are beginning to flower in that profusion which will be maintained with such amazing liberality throughout the spring. L. Zollingeri, which is of the nature and habit of L. purpureo-coeruleum, but a better colour, is bearing several clusters of azure, but of all the paler blues which have come to greet the first hints of spring none is of so pure and radiant a colour as that of Omphalodes cappadocica. The blue of this charming plant is of so rare a quality that the colour of O. verna looks dull by comparison. Even the azure of Hyacinthus amethystinus must yield place before this Cappadocian Forget-me-not. *A. T. Johnston, Talycafn, N. Wales.*

NOTES FROM GLASNEVIN.

Saxifraga burseriana magna.

In spite of the fact that the flower stems of Saxifraga burseriana tridentina were lengthening before there were any signs of movement in S. burseriana magna (Fig. 37), the latter opened its flowers first, these being fully expanded on January 19. S. burseriana is, undoubtedly, one of the best of the Kabschia section and one of the best of all Saxifragas. The compact cushions of grey-green spiny leaves are always attractive, and especially when surmounted by the comparatively large white flowers. Of the several varieties in cultivation, I prefer the subject of this note together with S. b. tridentina, now almost fully in flower, and S. b. speciosa which flowers considerably later, and has reddish flower stems and rather smaller flowers. For some reason S. b. Gloria has never been a success here, the flowers almost invariably being deformed.

Cultivation is simple, all that is necessary being good, well-drained soil, the plants placed in a crevice or on a sharp slope. Moraine culture is also successful, but I think better plants are produced under less hungry conditions. It is well to maintain a stock of vigorous young plants by dividing a number of the older plants into small pieces after flowering. These, dibbled into pans or boxes of gritty soil and placed in a close, cold frame, make good plants in a few months.

Hyacinthus azureus.

This, one of the daintiest of early spring flowering bulbs, is now in bloom. With very much the aspect of a Muscari, it differs sufficiently in the form of the segments to be retained in the genus Hyacinthus. Like the Grape Hyacinths (Muscari) it may be readily raised from seeds, so that a good stock of flowering bulbs may be secured three or four years from the time of sowing. Flowering in advance of the Muscari, this little Hyacinthus is a welcome harbinger of Spring and may be used freely about the rock garden, under deciduous shrubs, and in sunny borders. With Scilla bifolia and Leucojium vernum carpaticum both now opening their flowers, H. azureus adds greatly to the interest of the garden towards the end of January and early February. The flowers, borne in conical racemes, are light blue in colour and are accompanied by six or more somewhat glaucous leaves.

Crocus Sieberi.

A native of Greece, Bosnia and neighbouring countries, this early blooming species is of considerable value as a garden plant. It occurs naturally at high elevations and blooms early. In cultivation this characteristic is maintained and it is now in full flower at Glasnevin. As with many flowers, the colour is difficult to describe accurately but perhaps light violet-blue conveys the truest impression. This form is regarded generally as the type, but others, such as the variety versicolor with striped segments, are also known, while an almost white form is figured in the *Botanical Magazine*, tab. 6036. Crocus aureus and C. biflorus are also flowering now, and the common Dutch Crocuses are showing colour here and there, requiring only a few sunny days to bring them into full bloom.

Prunus Davidiana.

With the exception of Prunus subhirtella autumnalis, which flowers intermittently from December to April, P. davidiana is the earliest of the genus to flower at Glasnevin. Naturally, the weather decides whether we have a good display or not. The last week of January proved mild, if rather sunless, and the trees of David's Peach are quite attractive. The blossoms, though small, are freely produced on the slender shoots of the previous year and arouse considerable interest at this season. The flowers are pale pink in the form best represented here, but there is also a good white variety and one with rose coloured flowers known as P. davidiana rubra. To obtain the best effect from this early flowering species it should be planted in a sunny, sheltered position and preferably with a background of evergreens such as Hollies, Thuyas or Cupressus of sorts.

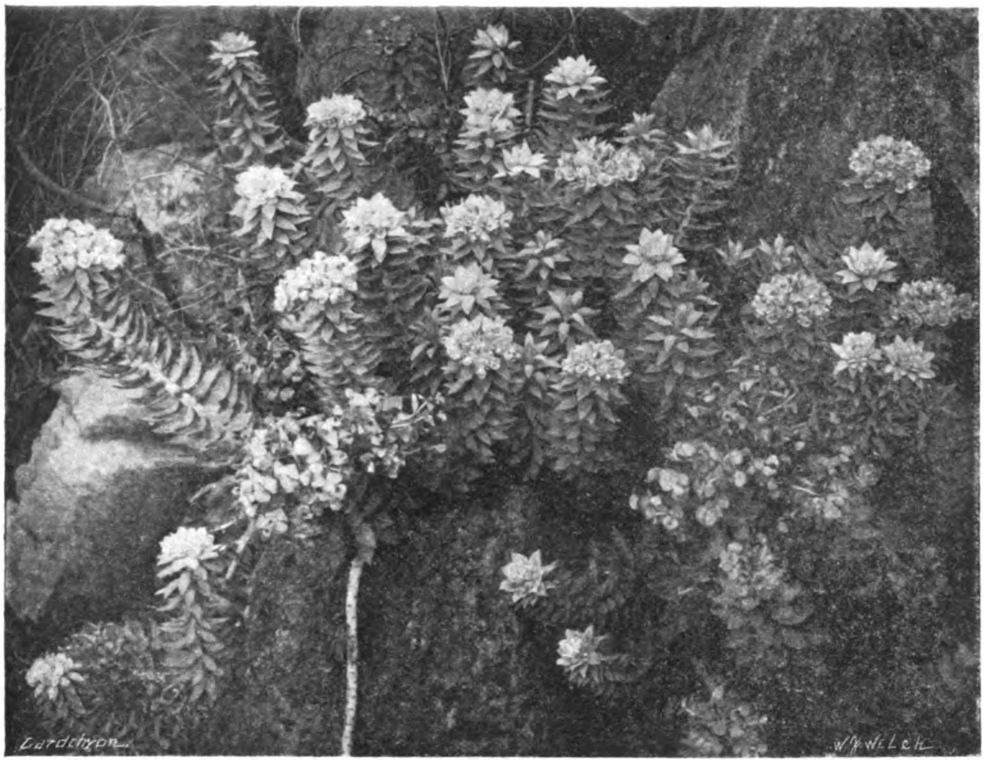

FIG 38.—EUPHORBIA BIGLANDULOSA FLOWERING IN THE ROCK GARDEN AT GLASNEVIN.

Rhododendron parvifolium.

Among many other Rhododendrons in the vicinity of the rock garden, this species from Siberia, etc., is now in flower. An evergreen, of rather twiggy growth, it lends itself well to restricted spaces in the rock garden where the rosy-purple flowers are atractive in the early spring. On a larger scale is R. dauricum, also flowering now. In this case the leaves are mostly shed before the flowers are open but a few are generally retained, especially in mild winters, and the shrub may be described as semi-evergreen. The flowers are larger than those of R. parvifolium and rather brighter in colour, but a young plant raised from seed sent from Sapporo a few years ago has deep rose-coloured flowers and retains most of the leaves. Whether these distinctions are due only to the age of the plant remains to be seen.

Viburnum nervosum.

This species of recent introduction was raised from seeds collected in Bhutan and presented to Glasnevin by Mr. A. K. Bulley. It is deciduous and flowers on the leafless shoots early in the year. Already the pink buds are prominent, cymes appearing at the apices of short side growths produced from the year-old shoots. The leaves are strongly veined and rather similar to the comparatively new but better known V. fragrans. The plants of V. nervosum are still young and have not yet flowered freely, but as they increase in size and become furnished with numerous short twigs, they give promise of forming a useful addition to the number of early flowering shrubs.

Lathraea Clandestina.

This interesting parasite is well-established, presumably on the roots of Willows which grow on the bank of the River Tolka, one of the boundaries of this garden. The stems, thickly-clothed with fleshy scales, are underground, but at this time of year the short, flowering shoots begin to appear on the surface and are already noticeable. The flowers, when fully-developed, are pale violet in colour and are then quite attractive. Willows and Poplars seem to be the commonest host plants, but Kerner mentions also Ash and Hornbeam. A moist soil is essential, and fresh colonies may be established by digging up portions of an original colony, with plenty of soil adhering, and transplanting these to any moist position in the vicinity of suitable hosts. The commoner species L. Squamaria will grow in much drier soil and flourished here for many years under a large Quercus Ilex; it continues to appear annually though the Oak has long since disappeared. As the only large trees now near it are Walnuts, there seems every reason to believe that their roots now supply the nourishment which the Lathraea cannot manufacture for itself. In this case, the flowers like the underground leaves, are white, and, though interesting from its peculiar habit, the plant has a more sinister appearance than the livelier coloured L. Clandestina. *J. W. Besant.*

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AN EIGHTEENTH CENTURY AMERICAN SEED LIST.

THERE is abundant evidence of the interchange of plants and seeds during the eighteenth century between England and her colonies in North America. While the colonists would like to have about them flowers, fruits, and vegetables with which they were familiar at home, they were equally anxious that North American plants should be sent home to add variety and interest to our gardens and woodlands. What was hardy in the climate of North America would probably thrive in England under milder though quite different conditions. It is certain that great quantities of plants were exported from America to England,* and probably every homeward-bound ship in the early days carried consignments of this kind; but, owing primarily to improper packing and to the length of time taken for the voyage, it is reasonably certain that the mortality among each consignment was considerable. Seeds offered a much easier and more simple method, and it was doubtless realised in those early days that the one essential point was to keep them dry and air-tight.

I have lately obtained the MS. List of what must have been one of the largest single consignments during the 18th century of seeds to England from across the Atlantic, for it gives 116 different sorts of seeds of shrubs, trees and herbaceous plants. Unfortunately the List is not dated, and the paper on which it is written has no watermark or date. But its approximate date may be arrived at in other ways. The List is described as "The Contents of a Box marked L. V. T. [*i.e.*, Lord Viscount Townshend] on board the ship *Albany*, Captain Richards, and in the care of Major Gorham [Goreham], who promised to see the Box delivered to the Right Honble. Lord Visct. Townshend." On the blank fourth page is written in another hand, "Copy of a List of Seeds sent to Lord Townshend, a copy of this List sent to Mr. Jones at Rainham." The date of the List may be safely placed at shortly before the outbreak of the Revolution in North America. Viscount Townshend, to whom the box of seeds was sent, was the fourth Viscount, who was advanced to the dignity of Marquess in October, 1787, and so the List must be earlier than this. The Major Goreham, who undertook to see the box of seeds delivered to Viscount Townshend, is undoubtedly identical with Lt.-Col. Joseph Goreham, who figures in the Army List of 1782 as Lieutenant-Governor of Placentia, Newfoundland (he died at Calais in July 1790).

The ship mentioned, the *Albany*, may have been the sloop of that name, from which its Commander, Lieut. W. Brograve, R.N., wrote February 12, 1761-2, to General Townshend asking him to use his influence so that he may sail in the *Albany* or a larger ship in the expedition for the capture of Havana (Townshend MSS, Hist. MSS. Commission, p. 397.)

The period 1776 to 1782 may be eliminated from consideration as, owing to the war between England and her Colonies, there were other things to think of than the exportation of seeds and plants. The List has remained until recently among the Irish papers of Lord Townshend, who was Lord-Lieutenant of Ireland from October, 1767, until November, 1772. He was at the siege of Quebec, which town surrendered to him as Commander-in-Chief after the death of Wolfe in 1759. He always kept up his interest in Canada, and it may also be noted that he had plantations in Florida, by the St. John's River.

The Mr. Jones mentioned on the endorsement was probably Townshend's estate agent. In the Townshend manuscripts volume issued by the Historical Manuscripts Commission, 11th Report, 1887, there is printed a letter from John Jones, dated from Fakenham (about three miles from Rainham Hall), December 12, 1759, and addressed to General Townshend, congratulating him on his arrival, and adding his tribute of thanks for his services to his country. The letter is couched in terms of respectful friendship, such as might have come from a man who, though an employee, was on friendly terms with the General. The gardens at Rainham have not played any prominent part in the history of horticulture in this country, nor is the first Marquess Townshend famous as a patron of gardening—a former Viscount, as we know from Alexander Pope, was famous for his Turnips, which he is said to have introduced as a field crop at Rainham from Hanover. But, as with all other country gentlemen of his time, agriculture was a part of his education and gardening was comprised in it.

It is clear from this List that Viscount Townshend was interested in trees and shrubs. The List itself is somewhat vague: nearly all the names are common ones, and those that are botanical are not always correctly spelt. The first four of the List are Pines—the White Pine or "Lord Weymouth's Fir"; Pinus Strobus, which had long been acclimatised in this country; the Three-leaved or Swamps Pine, the "Two-leaved or Pitch Pine Espinus," and the Two and Three-leaved Pine. There are several varieties of Spruces, Maples (including the "Snow White") and Beeches (among them "Fagus chinquatin"). Viburnum is another genus well represented, as is also the Redberry or Cranberry (all doubtless species of Vaccinium). The Winter Berry (Prinos) and the Sumach are present each in two varieties. There are 14 varieties or species of the Oak and seven of Hickory (Carya) and its allied genus Juglans. It is noteworthy that, from the common names in the List, many of the trees and shrubs were natives of swampy places, and this leads to the suggestion that some of them may have been intended for similar localities in Ireland. Now and then there is a botanical name which helps one to identify the particular plant without much difficulty, *e.g.*, No. 48 in the List is Spirea opulifolia (now Neillia opulifolia) which was introduced into English gardens from North America so far back as 1690. The Andromeda and the Kalmia, both largely North American genera, are well represented, and among their allies is Clethra alnifolia which is No. 86 on the List. Some of the entries are indefinite, such for instance as Toxicodendrum, which cannot mean T. capensis as that is a South African plant, introduced in 1783. "Staphalea" is probably Staphylea trifolia, long before introduced into Europe. To the student of the history of plants introduced into English gardens, there are other interesting little problems and points suggested by this List, and all such contemporary documents have their value in that history. *W. Roberts.*

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* This was by no means confined to the Mother country and there were other dangers than bad packing. In Quaritch's current *Catalogue of Autographs* there is a letter in Latin from Linnaeus to A. Haller at Gottingen, dated from Upsala, September 24, 1748, in which Linnaeus mentions the return of Dr. Mitchell from Virginia, where he had been collecting plants for six years; unfortunately Spanish pirates had taken them all, "an irreparable loss to Botany."

PRINCIPLES OF NOMENCLATURE.*

THE average botanist is apt to confuse a nomenclaturist with a name-monger and to think of him as an individual with a depraved taste for coining new names for old plants. Nothing could be further from the truth. One of the chief objects of those systematists who devote time to nomenclature is the avoidance of unnecessary name-changes.

One may sometimes hear a systematic botanist—usually one of very limited experience—say, "Oh! I've no time to waste on nomenclature." What this really means is that he is content to waste the time of his fellow-workers by employing names which may be wholly superfluous, ambiguous, or even erroneous, rather than give himself the trouble of ascertaining the correct ones.

In order to make satisfactory progress, the systematist has to build largely on the work of his predecessors; every little point cannot be worked out afresh. But previous records cannot be utilised unless we know precisely what group is indicated by a given name. Hence the essential point in nomenclature is certainly in the application of names. We must not only know what group is meant; we must also know its exact limits. All other considerations are secondary.

Certainty in the application of names depends on the acceptance of two axioms: (1) Each group, circumscribed in a given manner, can bear only one valid name (or combination of names). (2) Each name (or combination of names) can be validly applied to only one group of a given rank.

(1) ONE GROUP, ONE VALID NAME.

Unfortunately, many groups have been given two or more different names. In the Phanerogams, the 10,000 genera have about 20,000 names between them. How are we to decide which names to adopt? In the past this was largely a matter of individual preference. If a botanist did not like a name, or thought it was unsuitable, he immediately changed it. Names given by eminent botanists were accepted in preference to earlier ones given by less-known authors. This want of method in the selection of names inevitably led to differences in nomenclature, and was found to be so inconvenient, that it was gradually decided to accept the principle of priority of publication. Each group should bear its first properly published name. If we accept the principle of priority, it is obviously necessary to have a starting-point. It is impracticable to go back to the ancient Greeks and Romans for the names of plants. If we did, we should have to call the Garden Marigold Caltha instead of Calendula, and the Shepherd's Purse Thlaspi instead of Capsella. At the International Botanical Congress held at Viennna in 1905, the first edition of Linnaeus's *Species Plantarum* (1753) was taken as the starting-point for Phanerogams and certain Cryptogams. This was the first work in which binary nomenclature for species was consistently adopted.

(2) ONE NAME, ONE GROUP.

The botanists of the eighteenth century and many in the nineteenth century considered that if a group was reduced, its name could be used over again for another group of the same category. This view introduced purely subjective considerations into nomenclature, and led to the same name being employed simultaneously for different groups. Its adoption was due to a misapprehension of the respective spheres of taxonomy and nomenclature. It is the task of the taxonomist to delimit natural groups in accordance with his views as to their inter-relationships. As soon as a given group is circumscribed, it is the task of the nomenclaturist to determine its correct name in accordance with rules of nomenclature. Taxonomy is largely a matter of opinion. Nomenclature is concerned solely with facts. An example may serve to make this clear. In 1827 Dumortier gave the name Kickxia to a genus of Scrophulariaceae including Linaria Elatine and L. spuria, which differ from the other species of Linaria in the mode of dehiscence of the capsule. Dumortier soon reduced Kickxia to Linaria, and the name Kickxia was adopted for a genus of Apocynaceae described by Blume in 1828. But some botanists now consider the first Kickxia a good genus, and retain that name for it. Other authorities consider that the first Kickxia is a synonym of Linaria, and use the name Kickxia for the Apocynaceous genus. The name of the second genus has thus been made to depend, not on questions of fact, but on the taxonomic validity of the first genus, which is a matter of opinion. If we accept the rule that a name may not be used twice for groups of the same category no uncertainty can arise; only the first genus can bear the name Kickxia. The International Rules require alteration in this respect.

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* An address given before the Mycological Society by Mr. T. A. Sprague, The Herbarium, Kew.

(*To be concluded*).

TREES AND SHRUBS.

BERRIED BARBERRIES.

All Barberries bear berries, but until recent explorers in China sent us seeds of the species so common in the upland scrub of the Tibetan border, few cultivated species owed their place in our gardens to this berry producing character. Berberis vulgaris and some of its allies were well known, so was B. Aquifolium, and both are beautiful in berry. B. concinna from the Himalaya did not prove a really good doer in many places, but Wilson, Purdom, Farrer, Forrest, and Ward have all sent us brilliant berried species of various habit, and most of them are worth a place, especially as, in many cases, their leaves become brilliantly coloured in autumn, and the berries, being sour, are not quickly stripped from the bushes by the birds.

The limits of the species are not easily defined, but the seed collected in China usually comes true. So soon, however, as the plants produce seed in England, variations occur (we refer now to the bright red berried deciduous species) and the limits which might be set to species, so far as the different groups of seedlings from wild sources go, are overset. This probably arises from the plants being, as a rule, self sterile or nearly so, and from our practice of planting few shrubs of one species close together. Isolated shrubs rarely berry freely, and insects carry pollen from one species to another when they are in proximity. Consequently hybrids are frequent and some are more striking than the original species. Many hundreds of hybrid seedlings have been raised and distributed from Wisley during the past five or six years. The first raised came from seed of a plant obtained from Messrs. J. Veitch and Sons, Coombe Wood Nursery, as B. Wilsonae. It had the habit of that plant but differed in having brighter coral berries and in some minute characters. The seedlings varied enormously and probably owed their variety to several different crossings from neighbouring species. The best of those retained at Wisley was named B. × rubrostilla, and it is still unsurpassed in size and brilliancy of fruit. Others were exactly like B. polyantha in stature, fruit and inflorescence Others were more in habit and berry like B. Wilsonae. Seedlings have been raised from these and they differ enormously among themselves, in habit, autumn tints, and especially in size, tint, and arrangement of berries, but most are worth a place. Sparkler, Firefly, and a few others have received Awards of Merit, so has B × ferox, remarkable as its name implies, for the enormous number of its rather small fruits. Comet, the subject of the supplement to the *Gardeners' Chronicle* of February 2, bears as many and larger, more densely packed and rather paler scarlet berries.

The only way of increasing these forms is by layers or cuttings, and layers, though slow, are best. Fortunately the bushes transplant easily, grow in any well drained soil, and are best in the full sun. A stony bank, so long as it is not too dry, will suit

The seed germinates freely, calling for no extraordinary care, and the plants flower and fruit when only two or three years old. The chances of getting really good forms are considerable, and this method of acquiring stock is to be commended to all who have a little space to devote to these beautiful but very prickly plants. *F. J. C.*

ARAUCARIA CUNNINGHAMII.

The tree of Araucaria Cunninghami illustrated in Fig. 39 is growing in the the Adelaide Botanic Garden, and its very large size may be seen from comparison with the other trees growing in company with it. This species is said to be one of the largest of the Australian Pines and sometimes attains a height of two hundred feet. It is known as the Hoop Pine because of the hooped appearance presented by the horizontal bands on the bark. A form of the tree, which is found on the rocky portions and islands of northern Queensland, has been given the varietal name glauca.

The timber of this fine Conifer is whitish, easily worked, and largely used for making furniture; it is not very durable in the open. The species is not hardy generally in Great Britain, but grows freely out-of-doors on the south-east coast of England. There is a remarkably fine specimen in the Temperate House at Kew with a companion plant of Araucaria Bidwillii, another Australian species.

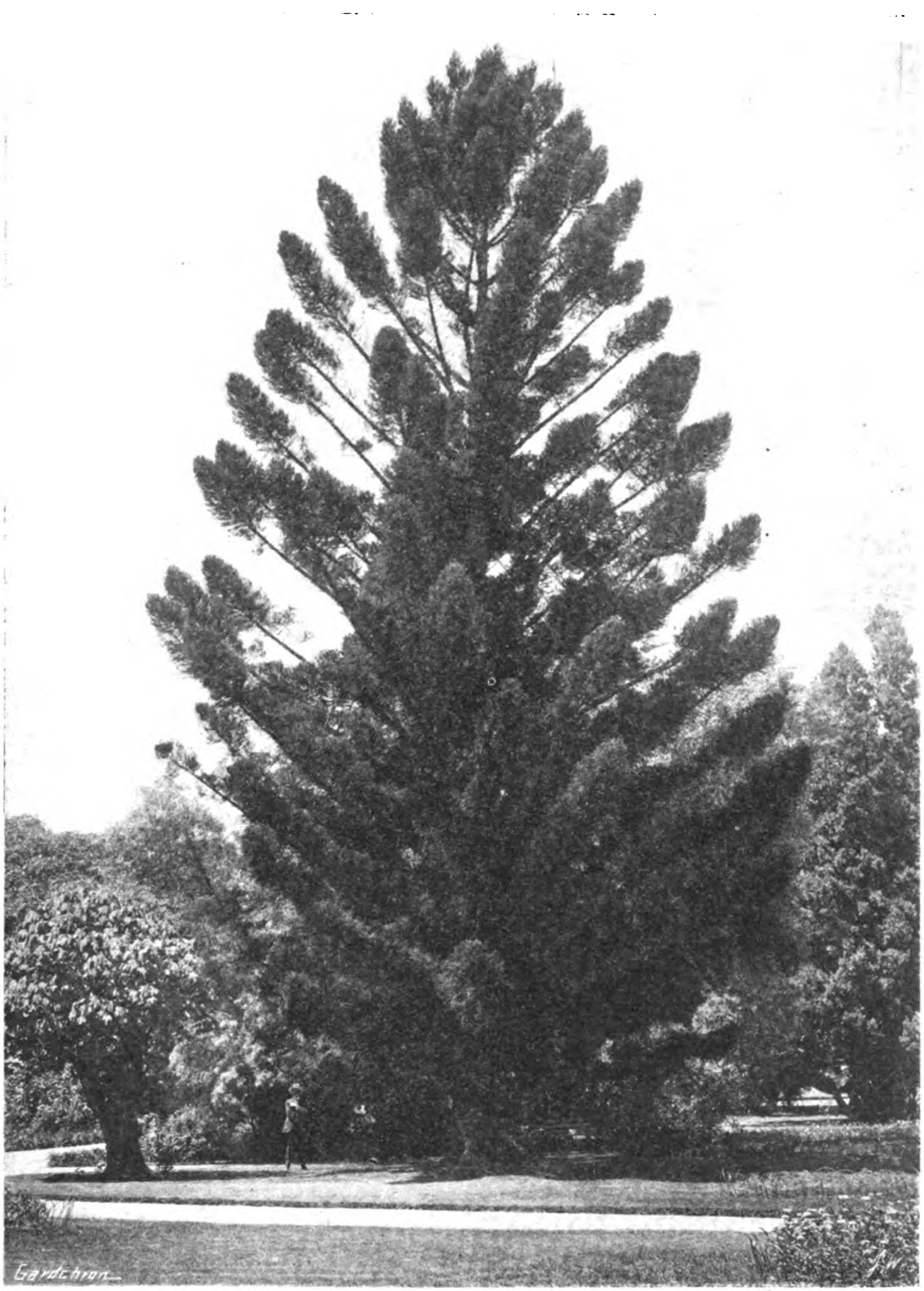

FIG. 39.—ARAUCARIA CUNNINGHAMII IN THE ADELAIDE BOTANIC GARDEN, SOUTH AUSTRALIA.

INDOOR PLANTS.

SEASONABLE CONSERVATORY FLOWERS.

It is unfortunate that after three months of a wealth of flowers, the passing of Chrysanthemums should leave us in the midst of the worst period of the whole year in which to maintain a bright display in the conservatory, and doubtless the cause is mainly due to the insufficiency of accommodation to prepare plants for flowering at this time of the year.

Within the past few years more attention seems to have been directed to Camellias, and when the beautiful semi-double and single varieties become better known, this grand old genus will find itself returned to former favour. The plants occupy comparatively small pots, keep dwarf for a number of years, and are especially useful for winter display. Indian Azaleas (A. indica), where a wealth of colour is required, are very useful, for they may be obtained in bloom from December to May in regular succession. Azaleas of the smaller section also should be freely represented, for in the many shades of orange and terra-cotta they are greatly admired. A further advantage with this group is that they can be readily lifted and forced quite easily.

Trees and shrubs which adapt themselves to gentle forcing have a claim for notice which cannot be well overlooked. Lilac is always sure to be admired, and no white variety holds its own like Marie Legraye, while Charles X. as a coloured form is equally reliable. Well prepared Wistarias, with their pendulous racemes of pale lilac-coloured flowers, are a valuable asset, and in standard form nothing is prettier. To anticipate something of the glory of the garden in spring, when Pears, Plums, and Cherries are at their best, is not an expensive matter, for all these trees respond to very little heat. Prunus triloba is one of the finest for this purpose, and when the long, slender shoots are wreathed with pink blossoms they are very attractive. Amongst Cherries, the pink and white-flowered Cerasus J. H. Veitch is one of the best, and Pyrus Scheideckeri, and P. floribunda also add to the variety in a refreshing style. Cytisus Andreanus is another pretty subject which is very adaptable to gentle forcing, and flowers freely in small pots.

Amongst shrubby Spiraeas there is welcome variety. S. arguta naturally flowers early in the open, and readily responds to indoor treatment whilst S. prunifolia bears its small, double, pure white blossoms in profusion. Deutzias should be well represented, and the rose-like golden-yellow flowers of Kerria japonica provide a colour which is rather scarce. With these and all shrubs which are required for the conservatory, preparation for forcing should be made the year previous, in order that they may become thoroughly established in the pots.

Winter flowering plants are of considerable importance in maintaining the interest of the conservatory, and the blue-flowered Pycnostachys Dawei is one of the best of decorative plants; it has an erect habit, and attains a height of some three-and-a-half feet. Of considerable charm and fragrance are the long racemes of the two Buddleias—B. asiatica and B. officinalis—the colour being dull white, relieved in the latter variety especially with a prominent orange eye. A neat, bushy plant succeeding in quite a small pot is Centropogon Lucyanus, its arching branches terminating in bright, rose-red flowers, while Erlangea tomentosa reminds one of a dwarf Eupatorium and gives a good display of lilac-flowered heads. The popular Coleus thyrsoideus is to be depended upon with little trouble, and in contrast to this, is Chorizema ilicifolium, with Pear-shaped flowers of a brilliant orange-vermilion. Planted out in a well-drained border this Leguminous plant is seen at its best, although it is remarkably floriferous when grown in pots. Of the several Acacias adapted to flowering in pots none is more suitable for small houses than A. cordata. This plant has a neat habit, pushing up straight shoots after the manner of a Heath, and bearing pale yellow flowers. Begonia Gloire de Sceaux and B. manicata are both useful furnishing plants and flower after the hybrids. Amongst the subjects for clothing the roof and pillars of the greenhouse, none is more attractive for the latter than the highly-fragrant evergreen Luculia gratissima. Begonia Haageana, under suitable conditions, is a good plant for training along the roof, and its rose-pink coloured flowers are produced in large clusters and are conspicuous over a long period. Abutilon insigne, though not a showy rambler is, nevertheless, worthy of a place.

Amongst dwarf plants the Chinese Primulas give a charming display. Good strains of Cinerarias and Cyclamen always provide plenty of colour and lend themselves to effective arrangement. Primula malacoides and a good form of P. obconica are other good flowering plants. Of common and inexpensive bulbous flowering plants, mention may be made of Freesia refracta alba, for no coloured seedlings, as yet, can approach this old variety for freedom of flowering and perfume. Prepared Hyacinths are worthy of room and L'Innocence is the best white variety. The early-flowering Tulip, Thomas Moore, forces admirably, and amongst Daffodils, Cervantes is by far the earliest, the variety Golden Spur, though perhaps finer, being left a long way behind. The Poetaz hybrids, with the improved form of Paper White, also make a useful display. *Y. G.*

MARKET FRUIT GARDEN.

The rainfall of January (2.53 in.) was slightly under the average for my district, but the land was already so sodden that one got the impression of a very wet month. Work on the land was impossible until the closing week, when the shallow ploughing of fruit plantations was begun. No planting could be attempted, but there are indications that an early start will be possible in February. The delay in the case of Black Currants is annoying, as all the cuttings from the young bushes will be wanted, and these do best if put in early.

Surface Drainage.

An orchard situated on a gentle slope has the advantage of permitting surface drainage. If water furrows can be drawn between the rows of trees with a double-breasted plough, the land lies much drier during the winter. We are, I think, apt to forget the value of surface drainage. In some cases wet patches cannot be drained so quickly in any other way, because an impervious subsoil prevents the water from reaching pipe drains, which must always be laid rather deeply in fruit plantations to avoid choking with roots. In the case of bush fruit quarters, it is a good plan to make furrows midway between the rows and draw the soil thrown out by the plough up to the stems of the bushes or trees. This replaces the soil generally moved away from the bushes by hoeing in summer. It is very bad for bush fruits to be left high and dry, so that fibrous roots show round the collar.

Voles Troublesome.

Rabbits, though numerous, have not done a great deal of damage this winter, but voles are exceptionally troublesome. I had some nice three-year-old feathered trees of Cox's Orange Pippin laid in against a hedge awaiting an opportunity for planting. They were carefully netted to exclude rabbits, but no thought was given to mice or voles. Evidently the hedge was full of the latter, for 97 of the trees were so badly gnawed as to be useless, a loss of £14 11s., not to mention the cost of replacing the trees with maidens. I have never seen such serious damage done by voles. In many cases they gnawed off the bark right round the stem. They also worked along the rows underground, and took the bark and most of the fibres off the roots. Never again will trees be laid in near a hedge. I have also had some trees gnawed by mice before being removed from the straw packing in which they arrived from the nursery.

Brown Rot of Plums.

The pruning of Plums has been finished at last. It was a long job this year because of the dead spurs left as a legacy from last season's severe attack of brown rot. All these spurs had to be cut off, collected and burnt. This seems to be the only method of dealing with brown rot. I have lost faith in winter spraying as a preventive, as last winter the trees were thoroughly done with copper sulphate, and yet the worst attack of brown rot I have experienced followed after a short interval. Spraying after the fall of the bloom with Bordeaux mixture or lime-sulphur is often recommended, but I have not found it to be of any use. As this disease appears to be becoming more serious and general, experimental work is badly wanted. There is only one comfort. If only the trees can be cleared of dead wood and dried-up fruits and leaves, they start the next season free from brown rot, and are likely to escape if the spring be reasonably dry. A little brown rot amongst the fruit is a small matter, but the form of the disease prevalent last year, which kills spurs, shoots, and branches, is much to be dreaded.

Strong-Growing Apples.

Some of the strong-growing varieties of Apples are notoriously slow in coming into bearing. There is no doubt, however, that the waiting period can be greatly shortened by reducing pruning to a minimum. Prune hard, or even moderately hard, and nothing but strong growth appears year after year, but let the leaders alone for a time, and they are quickly furnished with fruit spurs. I have an example in a plantation of fine young Bramley's Seedling. Last winter the leaders were only lightly tipped, and in one row they were left full length. The best result, so far as spur formation is concerned, is undoubtedly to be seen in the latter. These trees are on free stock and have been planted eight years. They have borne very light crops; but it is time that they did something more, as they are big, well-furnished trees. This winter I am having the leaders left full length on the whole batch. Laterals are spurred to quite five inches, except where there is room to leave them full length. This treatment will be continued till the trees are in full bearing. If then growth steadies down a lot, as it probably will, the leaders will again be lightly tipped, so as just to keep them growing. The method of long spurring of laterals leads to what some growers would consider ungainly growths, but it is the only way to get clusters of fruit spurs in reasonable time in the case of strong growers. Once the tree has been got into full bearing by these means, the spur clusters can be modified by cutting back to an actual fruit bud. I used to do this as soon as a fruit bud appeared, but I find this is apt to force new growth instead of allowing the bud to produce bloom and fruit. It is better to make quite sure that the spurs are fruitful before attempting to shorten them. Once the tree has been induced to fruit the problem is over, for there is nothing like fruiting to steady down growth. A lot of temporary fruiting wood on the lower parts of the branches checks the growth on the top and leads to the formation of natural spurs all over the tree. The temporary fruiting areas can then be reduced or thinned out where necessary. What the private gardener achieves by root-pruning the market grower can generally accomplish by very light pruning during the time when the tree is growing into bearing. *Market Grower.*

HOME CORRESPONDENCE.

Colour in Apples.—Seeing that we have been so unfortunate in the Apple crop, we have had, naturally, very few remarks about colour in Apples this season, but I have a faint recollection of having seen reviews of a book on this subject. The colouring matter is formed as a protection, and when produced in the young fruit it spreads over the surface of the Apple as it grows, in a general way; of course, some Apples have inherited a quality of high colour, but even this, is to a certain degree, governed by weather and environment. The colouring matter is for the protection of the green cells in the skin of the fruit, and according to the necessity of the degree of cold or dryness, so is the colouring greater or less. Our glorious autumn colouring is of the same character, a means of protection, and to assist in the migration of the useful materials in the leaves to the roots, branches, or stems, as the case may be, before they fall to the ground. Anthocyanin changes light into heat. Some plants growing in a low temperature will be coloured by anthocyanin, and plants in high exposed positions may be coloured purple, dark violet, or red, yet in lower positions the same plants are green or grey. I am sure most gardeners have had cause to notice, say, a batch of Tomato plants planted in the open which, if the weather was cold or unfavourable, turned almost purple: and we are like plants, apt to be higher coloured on exposure to cold winds, sun, and rain. *J. D. Colledge.*

Jasminum nudiflorum.—This beautiful, yellow-flowered shrub is now quite attractive in numerous cottage and villa gardens in the suburbs of London, and that makes it all the more difficult to understand why such an interesting plant is so rarely seen in large public or private gardens. As it appears to grow in any soil and to flower even when growing on a wall facing due north, it deserves wider cultivation than it at present receives. *B.*

Young Lads and Horticulture. —When we consider that the openings for lads to start their working careers are not over numerous, possibly more scarce than at any time during the last decade, and that many lads from our villages and hamlets will have to work or starve, it seems to me that a section will as heretofore become gardeners. I do not see any reason why the youth taking up horticulture should not become as good or a better craftsman than we, the gardeners of to-day. His chances of obtaining knowledge are not as difficult as they were in our day, and as the principles of horticultural practice are now more understandable the simplest of operations should prove of interest to the youth of enquiring mind. In my day, things were done by rule-of-thumb, and frequently my superior knew very little as to the reasons why an operation was performed in a particular manner. Further the lad now gets a fairly good education in the elementary school and also there are the various research stations, horticultural colleges, and the Ministry of Agriculture, with their reports and pamphlets, to quicken the interest and hasten the knowledge. That the style of gardening has changed, and will change further, is a foregone conclusion. A nation with a huge debt cannot afford the luxury of man power necessary to grow quantities of exotic plants, neither will it be able to indulge in a large acreage of lawns. As a national asset, a well-cropped house of Tomato plants is of more value than the same house filled with Crotons. In place of some of the lawns, the labour can be used for growing hardy fruits, trees and shrubs, and herbaceous plants, of which there is now a bewildering variety. These will no doubt prove more interesting and useful to the British boy, who loves an outdoor life. It should be our duty to give any boy, who is worth it, all the encouragement and help we are able. *J. E.*

SOCIETIES.

ROYAL GARDENERS' ORPHAN FUND.

ANNUAL MEETING.

The Annual Meeting of the Royal Gardeners' Orphan Fund was held at Simpson's Restaurant, Strand, on Thursday, the 7th inst., Mr. D. Ingamells, Chairman of the Committee, presided, and there were present Messrs. J. M. Bridgeford, A. Dawkins, J. F. McLeod, G. Reynolds, John Wort, Geo. F. Tinley, J. Cull, D. Swain, Charles H. Curtis, J. Rodgers, and Peter R. Barr.

After the notice convening the meeting had been read and the minutes of the previous annual general meeting read and confirmed, the Report of the Executive Committee for the year ending December 31st, 1923, was presented.

REPORT OF THE COMMITTEE.

In presenting its Thirty-sixth Annual Report your Committee is gratified in being able to record another year of valuable work on behalf of the orphans of gardeners. Splendid support has been forthcoming and relieved your Committee of much anxiety in view of the great financial difficulties of the times. Much, however, remains to be done and your Committee appeals earnestly to the supporters of the Fund to do their utmost in the coming year to enable it to replace some of the investments which had to be realised in the war years to meet the commitments of the Fund in those difficult times.

The receipts from all sources in 1923, together with a balance from 1922 of £925 3s. 10d., amounted to £2,575 9s. 1d. A considerable proportion of this sum was raised at and in consequence of the Festival Dinner, held at the Hotel Victoria on May 18th, under the Presidency of George Monro, Esq. Your Committee acknowledges with deep gratitude its indebtedness to Mr. Monro for presiding on that occasion, for his eloquent speech advocating the claims of gardeners' orphans, for interesting his many friends in the objects of the Fund and his munificent donation of £100 to the Festival Dinner List. There were one hundred and sixty present at the dinner which was attended with brilliant success. Other liberal donors on that occasion whose names may be specially mentioned are:—F. C. Stoop, Esq., £100; Messrs. Hurst & Son, £100; Messrs. Sutton & Sons, Fifty Guineas; Mr. W. Nutting, £56 6s.; Mr. J. M. Bridgeford, £52 11s. 6d.; Mr. H. J. Jones, £13; Mr. J. F. McLeod, £25; Mr. E. Dixon, £23; and Mr. George F. Tinley, £25 15s. 6d., whilst the amount collected by Mr. Ingamells amongst friends of the Fund in Covent Garden Market totalled £165. Your Committee offers its grateful thanks to those who organised the Festival Dinner, to the Stewards, and to all who contributed to its success.

Your Committee is especially pleased to announce that one of the Vice-Presidents, Lionel de Rothschild, Esq., O.B.E., has kindly consented to accept the office of President, of the Fund, which had become vacant by the retirement to the Duke of Bedford, K.G., who succeeded the late Sir Julian Goldsmith, Bart., the first President and was a most generous supporter of the Fund. Mr. Rothschild presided at the Annual Dinner in 1922 and other members of his family have occupied the chair at previous dinners. The acceptance of the office of President of our Fund by Mr. Rothschild, a member of a family whose benevolence is a household word, will, your Committee is sure, give the liveliest satisfaction to all supporters. Much valuable help has again been forthcoming from horticultural societies in various parts of Great Britain, and your Committee takes this opportunity to express the Fund's indebtedness to them and especially would they thank the various secretaries and others who have specially interested themselves on the Fund's behalf.

Valuable amounts have been raised by Mr. W. Auton, Pyrford Court Gardens, Woking, and by Mr. F. C. Stainsby, Brocklesby Park Gardens, Lincolnshire, both of whom organised entertainments on behalf of the Fund, and the Committee desires also to acknowledge a generous donation from P. V. David, Esq., of Friar Park, Henley-on-Thames, as the result of opening his famous gardens and grounds to the public. Your Committee takes the opportunity of bringing to the notice of other gardeners and owners of beautiful gardens these means of helping the Fund.

With deep regret the Committee have to record the death of many subscribers during the year. Amongst the foremost was Sir William P. Treloar, Bt., whose interest in children needing help was unbounded, so that he was known as the Children's Friend. He took the warmest interest in this Orphan Fund and presided at the Festival Dinner in 1907. Other friends whose loss we have to mourn are Mr. George L. Caselton, for many years a valued member of the Committee; Mrs. Fenwick, Mrs. Woodhouse, Mr. Thomas Challis, The Rev. Canon Fowler, Mr. J. Jaques, Mr. Owen Thomas, V.M.H., Lady Manningham Buller and Mr. James Child.

The Statement of Accounts was also presented; the receipts included subscriptions, £171 12s. 6d.; donations, £366 5s. 6d., proceeds of the Annual Festival Dinner, £791 10s. 2d.; advertisements, £13 5s. 0d.; dividends, £307 12s. 1d. Since the books were closed on December 31 £120 1s. 6d. had been received in respect of the Annual Dinner and repayment of income tax £54 19s. 3d. The total income, together with last year's balance, amounted to £2,650 9s. 10d. The payments included £1,279 16s. children's allowances; Secretary's salary, £300; and various expenses of management including rent, printing etc., £199 14s. 3d. The balance, including £550 0s. 0d. cash on deposit, amounted to £795 18s. 10d.

Mr. David Ingamells, in moving the adoption of the report and balance sheet, stated it was gratifying to know that in a year when trade was so bad and most persons were experiencing a difficult financial time, the Fund was £45 better off than it was last year. Mr. Peter Barr, one of the auditors, in seconding the adoption of the report, also congratulated the Fund on being in a slightly better financial position than last year. The report and balance sheet were adopted without further comment.

The Chairman proposed the election of Mr. Lionel de Rothschild as President. He referred to the great interest Mr. Rothschild had taken in the Fund, and also the support the Fund had received from the various members of his family. The motion was seconded by Mr. Bridgeford and carried unanimously. Mr. Chas. H. Curtis proposed that "Mr. George Monro be gratefully thanked for his great kindness in presiding at the Annual Festival Dinner of the Fund, and that he be elected a Vice-President of the Fund." Mr. Curtis stated that everyone present was familiar with Mr. Monro's business abilities, and the success of the Annual Festival Dinner was very largely due to his generosity and personal appeal. Mr. A. Dawkins seconded the motion which was carried unanimously. The election of officers was next proceeded with. The retiring members of the Committee were re-appointed with the exception of Mr. C. R. King, who had expressed a desire to retire. Mr. W. H. Cutbush had also resigned and the two vacancies were filled by the election of Mr. D. Campbell, superintendent of Regents Park, and Mr. T. Pateman, Brocket Hall Gardens, Hatfield. The auditors were also re-appointed, and Mr. Brian Wynne re-elected Secretary. Mr. Bridgeford, in proposing the re-election of Mr. Wynne, stated that they all regretted the cause of his absence—ill-health and expressed a hope that he would be able to be with them again soon. It was resolved to send a telegram expressing sympathy with Mr. Wynne in his long illness and wishing him a speedy recovery. The names of five orphans were presented for election and there being no necessity for taking a poll they were elected by resolution. They were as follow:—Elsie Violet French, William Sydney French, Tristram John Hay, Ethel Callander Pritchard, and Violet Low Wright. A vote of thanks proposed to the Chairman by Mr. Cull concluded the proceedings. Mr. Cull referred to Mr. Ingamell's splendid work on behalf of the Fund. He was, he said, a splendid beggar for money, and he doubted if any other man could raise so much money for the Fund in Covent Garden Market as Mr. Ingamells, for he had such a nice manner that few could refuse him. Mr. McLeod in seconding the vote of thanks, stated that Mr. Ingamells was the soul of courtesy and good nature, and had the interest of the Orphan Fund at heart. Mr. Curtis also supported the vote of thanks and stated that the Fund could not have a more able or more courteous Chairman. Mr. Ingamells, in replying, stated that he appreciated to the fullest extent the kind words that had been said of the little he had been able to do for the Fund. He had always had a warm corner in his heart for the orphans of gardeners, and he would continue to do what little he could for them; his work on the Orphan Fund was one of the greatest joys of his life.

NATIONAL CHRYSANTHEMUM.

Sir Jeremiah Colman, Bt., presided at the annual general meeting of the National Chrysanthemum Society held in the Lecture Room, Royal Horticultural Hall, on Monday, the 4th inst. There was a comparatively small attendance, as influenza appeared to have kept many members away.

The report of the committee for the year 1923 was presented and referred in generous terms to the support of Sir J. Colman; to the successful exhibition held on November 1 and 2, 1923; to the excellent work done by the Society's Floral Committee, which had adjudicated upon no fewer than 202 new Chrysanthemums during the season; to the addition of several new affiliated societies and to the deferred publication of the *Transactions*. The accounts showed a turnover of £356, and there was a balance carried forward of £36 18s. The chief items of income were £111 14s. 3d. from subscriptions, £19 19s. from affiliation fees, £84 11s. special prizes, and £79 10s. as gate money at the show. On the expenditure side, printing and stationery came to £38 19s. 11d.; medals, cups and engravings to £46 1s. 10d. and prize money and show expenses to £150 3s. The Society has a reserve fund of £50, and a balance of assets over liabilities of £117 12s. 8d.

The President moved the adoption of the Report, and said he felt it a great honour to have been elected President and although his personal interest ran rather to Orchids than to Chrysanthemums, the latter flower was grown very extensively at Gatton, and varieties of distinct colours were grown for the decoration of the tables and rooms, and these decorations were carried out by Lady Colman. They also managed to grow some large flowers at Gatton, but the decorative varieties were those which appeal to him especially, and one old, yellow, decorative variety named Mrs. Filkins was still grown in some quantity at Gatton; he believed it was extremely difficult to find it in cultivation elsewhere. The motion was seconded by Mr. Crane and carried.

Sir Jeremiah Colman was re-elected President, and promised to do all that lay in his power to further the interests of the Society. On the proposal of Mr. H. J. Jones, Mr. John Green was re-elected Hon. Treasurer; Mr. E. F. Hawes was re-elected Chairman of Committee, and Mr. D. Ingamells Vice-Chairman of Committee. Mr. C. Harman Payne was re-elected Hon. Foreign Corresponding Secretary, and in reply pointed out that he had occupied the position continuously since 1888, and observed that it was exactly forty years since the Society first adopted the title of "National." Mr. C. H. Curtis was re-appointed Secretary. The eligible retiring members of Committee were re-appointed, and Mr. W. J. Godfrey, Exmouth; Mr. H. Woolman, Shirley, Birmingham, and Mr. J. Collier, Gatton Park Gardens, were elected to fill the vacancies arising. A vote of thanks to the President brought the very business-like proceedings to a close.

ROYAL SCOTTISH ARBORICULTURAL.

The seventy-first Annual Business Meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on February 6th. Mr. James Whitton, Vice-President, in the absence of the Duke of Atholl, the retiring President, in the chair, which later was taken by the new President, the Earl of Moray.

The report of the Council stated that the membership was over 1,700, and that by the Treasurer showed that the funds on December 31 last were £2,481 17s. 6d. The amount subscribed and guaranteed towards the cost of the Scottish Forestry section at the British Empire Exhibition at Wembley was £1,433, but the expenditure was estimated at between £1,500 and £2,000. It was agreed to hold the annual excursion this year at Wembley and in the neighbourhood of London.

Colonel Fothringham, one of the Forestry Commissioners, reviewed the work of the Commission. He stated that 10,000 acres had been planted in Scotland, and that another 4,000 acres would be planted this year. He strongly urged the necessity for continuity of policy, as sudden cutting, such as that of the Geddes axe, and expansion of the planting programme involved waste of plants. The sum of £37,000 had been expended in Scotland by the Commission in the relief of unemployment.

The new President, the Earl of Moray, afterwards addressed the meeting, and gave an account of the early development of Darnaway Forest, where the ninth Earl began planting in 1768. It consisted of 4,500 acres, and varied in elevation between 100 and 700 feet above sea level. The first Larch was planted in 1768.

The following office-bearers were elected for 1924: President, the Earl of Moray; Vice-President, Mr, George Leven, Bowmont Forest, Kelso; Councillors, the Earl of Leven and Melville, Glenferness, Nairn; Professor W. Wright Smith, Royal Botanic Garden, Edinburgh; Messrs. James Whitton, Glasgow: Alfred G. Crabbe, Glamis; and William Fyfe, Whittingehame.

ROYAL HORTICULTURAL.

February 12.—On the occasion of the Annual General Meeting of Fellows there is usually a good exhibition at the Royal Horticultural Hall, Westminster, and the meeting on the above date was no exception to the rule. The hall was well filled with interesting exhibits and the principal subjects shown were Cyclamens, Orchids, Carnations, forced Daffodils and Hyacinths, Oranges, hardy plants in great variety, and Hippeastrums.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Mr. Gurney Wilson (Hon. Secretary), and Messrs. C. J. Lucas, F. W. Flory, H. T. Pitt, Arthur Dye, H. G. Alexander, J. E. Shill, F. K. Sander, H. H. Smith, Charles H. Curtis, J. Cypher, A. McBean, J. C. Cowan, E. R. Ashton, G. F. Moore, T. Wilson Potter, Richard Thwaites and Fred. J. Hanbury.

The Chairman referred in feeling terms to the loss the Committee had sustained by the death of Mr. Pantia Ralli; a vote of condolence was passed to Mrs. Ralli, with an expression of the Committee's appreciation of the services Mr. Ralli had rendered to Orchidology.

The Committee forwarded a recommendation to the Council that the Society's Gold Medal be granted on the occasion of the great American Orchid Show and that Mr. Gurney Wilson be the bearer of the medal: as already announced, Mr. Wilson will act as chairman of the judges at this great function.

Awards of Merit.

Cymbidium Curlew, Westonbirt variety.—This is a deep yellow form of a hybrid which has already become popular. The broad segments reflex a little at the margins and the yellow colouring is tinted with green. The lip is very handsomely marked with crimson on a pale yellow ground, and has cream-coloured edges. Shown by Sir George Holford (Orchid Grower, Mr. H. G. Alexander), Westonbirt, Tetbury.

Miltonia William Pitt, var. The Prince (*Isabelle Sander* × *Bleuana var. Reine Elizabeth*).—The small plant of this handsome hybrid carried two large flowers. The sepals and petals are a rich reddish rose, almost ruby colouring, although on the two petals there are paler markings of rose. The wide lip is rose coloured on a white ground, and the basal mask is white with a rich red-brown blotch and radiating lines of a similar colour. Shown by Messrs. Charlesworth and Co., Haywards Heath.

Odontoglossum xanthinum (*armainvillierense var. xanthotes* × *luteo-purpureum var. Vuylstekeanum*). A very graceful hybrid Odontoglossum in which the influence of the last named parent is seen in the yellow colouring. The flowers are of good size and form and are freely spotted and barred with yellow on a pale cream-coloured ground. The base of the lip is yellow, but the front of this organ is white, fringed and waved. Shown by Messrs. Charlesworth and Co.

Groups.

Messrs. Sanders, St. Albans, contributed an interesting group in which hybrid Cymbidiums were a prominent feature. There were well grown plants of C. Miranda, C. Ringdove, C. Vesta, and C. Alexanderi with notable good spikes of flowers. Other good Orchids were Masdevallia Schröderiana; the charming little Odontoglossum Oerstedii majus; Pleurothallis Roezlii, Dendrobium triflorum, and the handsome Laelio-Cattleya Schröderiana with two magnificent flowers (Silver Banksian Medal).

Messrs. Charlesworth and Co., Haywards Heath, made a most brilliant display of Orchids consisting chiefly of beautiful Odontoglossums and Laelio-Cattleyas. This exhibit was greatly admired for its grace and colour, while the growers present praised the cultural skill displayed. Some of the best of the Odontoglossums were O. Tityus, the new O. xanthinum, white forms of O. crispum, and O. Rosina, with flowers of large size. Odontiodas were represented by O. Hera, O. Sir Douglas Haig, O. Ganesa and the splendid O. Charlesworthii. Among other fine and interesting plants in this exhibit we noted Dendrobium atro-violaceum, D. Mooreana, with five of its white, fragrant flowers; the effective Laelio-Cattleya Luminosa aurea; the white Calanthe Harrisii, Vuylstekeara Aspasia, Cattleya Enid alba, a fine specimen with nine flowers: Loweara aurata, a fine Sophronitis cross: Odontonia Merope, and the handsome Miltonia Wm. Pitt, var. The Prince (Silver-gilt Banksian Medal).

The fine old Coelogyne cristata was shown by Capt. M. Drummond (gr. Mr. L. Smith), Cadland Park, Southampton. The group consisted of sixteen specimens, most of them about a yard across and grown in small receptacles. All were covered with numerous graceful spikes of white flowers, and one plant was so thickly covered with bloom that a Cultural Commendation was awarded for it. A few Cypripediums and a plant of Dendrobium speciosum with two spikes completed the display. (Silver-gilt Banksian Medal).

Messrs. Stuart Low & Co., had a small exhibit in which Phalaenopsis amabilis and P. Rimestadiana were conspicuous. The old Arpophyllum giganteum was included and carried three of its erect spikes of flowers, while other interesting plants were Cirrhopetalum picturatum, Oncidium varicosum Rogersii and numerous Odontiodas, Odontoglossums and Laelio-Cattleyas (Silver Banksian Medal).

Other Exhibits.

Messrs. Flory and Black exhibited a small collection of well-grown Cypripediums and a plant each of Cattleya Octave Doin and the very pretty Sophro-Laelio-Cattleya Prince of Orange.

Baron Schroder (gr. Mr. T. Shill) exhibited four plants of Cypripedium Eurybiades each carrying one enormous flower of fine proportions and bold colouring. In addition, a grand spike of the richly coloured Calanthe Baron Schröder was shown.

Sir Jeremiah Colman's group included Dendrobium speciosum fusiforme, a fine plant of Platyclinis glumacea; some very charming varieties of Lycaste Skinneri and a handsome plant of Brasso-Cattleya Gatton Lily var. majestica, with four splendid flowers.

Sir George Kenrick (gr. Mr. MacDonald), Whetstone, Birmingham, showed a very interesting collection of rare Orchids and received a Cultural Commendation and a Vote of Thanks with the special appreciation of the Committee. The species included were Dendrobium Leeanum, D. Goldiei, D. Schützei. D. fimbriatum magnificum with numerous pendulous spikes of golden flowers; the neat little D. endocharis, and Vanda teres Mac Donaldii, a very pale, almost white form of this fine Orchid.

Floral Committee.

Section A.—*Present:* Messrs. H. B. May (in the chair), J. F. McLeod, Arthur Turner, Donald Allan, J. M. Bridgeford, John Heal, M. C. Allwood, W. Howe, E. R. Janes, H. R. Darlington, J. B. Riding, W. Stephens, W. H. Page, D. B. Crane, Chas. E. Pearson, W. B. Gingell, W. P. Thomson, H. J. Jones Hugh Dickson, and W. W. Cartwright (Secretary).

Section B.—*Present:* Mr. C. W. Loder (in the chair), Sir W. Lawrence, and Messrs. R. C. Notcutt, T. Hay, G. Yeld, A. Bedford, F. G. Preston, G. Harrow, E. A. Bowles, C. Williams, W. B. Cranfield, J. Hudson G. Reuthe, W. J. Bean, and Reginald Cory.

FIRST-CLASS CERTIFICATE.

Crocus Sieberi var. Hubert Edelsten.—A beautiful Crocus with broad, white, blush-tinted segments, with orange-coloured bases; the latter colouring is very effective. The outer segments are stained on the outside with dull purple. It appears to be a very free-flowering variety, and it certainly is a very fine and attractive Crocus. Shown by Mr. E. A Bowles, Myddleton House, Waltham Cross.

AWARDS OF MERIT.

Rhododendron mucronulatum.—A fine early flowering shrub which has been a picture of floral beauty at Kew for over a fortnight. It is closely allied to R. dauricum, and like that species, is practically deciduous. The rosy purple flowers are borne in small clusters at the ends of the twigs, and there are from four to six in each cluster. R. mucronulatum was introduced in 1907 and is a native of Dahuria, Northern China, Manchuria and Japan. At Kew it grows to a height of from 4 feet to 6 feet. Shown by the Director, Royal Gardens, Kew.

Eranthis Tubergenii.—As shown this hybrid Winter Aconite was about six inches high, but it will scarcely reach that height in the open. The flower has six segments that are of a rich Buttercup yellow, and each flower is set in a reflexing frill of green. E. Tubergenii was obtained by crossing E. hyemalis with E. cilicicus and it promises to be a good addition to early hardy flowers. Shown by Sir William Lawrence, Burford Lodge, Dorking.

Crocus chrysanthus var. Bullfinch.—A charming cream-coloured Crocus, with a broad, orange-coloured centre and pale yellow anthers. The segments are broad and make up a large rounded flower of great beauty. Shown by Mr. E. A. Bowles.

Crocus chrysanthus var. Moonlight.—In this variety the flowers are soft yellow with a staining of brown on the back of each of the outer segments. Shown by Mr. E. A. Bowles.

Cotoneaster lactea.—The ovate-lanceolote leaves of this species are deep green with a greyish tinge. It is a free growing shrub and apparently evergreen. Its fruits remain over a long period and are deep red, slightly pyriform, and borne in semi-pendulous clusters. Shown by F. Stern, Esq., Montague Square, W.

GROUPS.

A very picturesque group of Cyclamen was staged on a low length of tabling by Messrs. Sutton and Sons. In the centre was arranged a large mound of Giant White, a large-flowered variety, while adjacent to this centre-piece were the varieties Vulcan, deep crimson; Giant Firefly, brilliant cerise; Giant Salmon Pink, Salmon Queen, and Rose Queen, grouped in drifts and interspersed with specimen palms. Small mounds of Salmon Scarlet, of good colour, were staged towards the ends of the table, and other varieties included were Giant Shell Pink, Giant Mauve, Fringed Pink Pearl, and Giant Cherry Red. Altogether some eight hundred plants growing in five-inch pots were shown in this fine group (Gold Medal).

Messrs. L. R. Russell, Ltd., had a display of greenhouse plants and forced hardy shrubs Among the former were Begonia manicata, a very graceful plant; Bilbergia nutans, with drooping spikes of green-coloured flowers; Tillandsia Zahnii, the pure yellow flowers of which make a charming contrast to the scarlet stem; T. Lindenii Duvalii, with blue flowers. Well-flowered specimens of Azalea indica were arranged at the sides, and a back ground was made with forced specimens of Prunus triloba and Wistaria sinensis (Silver Banksian Medal).

Messrs. Cragg, Harrison and Cragg showed their noted Covent Garden strain of Cinerarias, represented by excellently grown specimens in five-inch pots. The colours were grouped in pink and rose-pink and light and dark blue shades (Silver Banksian Medal).

Messrs. Allwood Bros. had a pretty group of Carnations, prominence being given to Chintz, white ground flecked with red; Coral Glow, a new variety of intense apricot colouring; Edward Allwood, scarlet; Topsy, crimson; Destiny, cerise; and Jessie Allwood, a yellow Malmaison variety. A collection of Dianthus Allwoodii grown in a cold greenhouse from plants lifted from the open was also exhibited (Silver-gilt Banksian Medal).

Mr. C. Engelmann showed a small group of Carnations, the varieties Topsy, crimson, White Wonder, Laddie, salmon pink, and the yellow Saffron, being among the best.

From Messrs. K. Luxford & Co. came a bright display of Carnations, and choice varieties were Cheerful, a rich rose shade; Aviator, scarlet; Maine Sunshine, yellow; Happy Day, scarlet, and Bona, salmon pink (Bronze Banksian Medal).

Messrs. Stuart Low & Co. staged a good collection of Carnations, including Eileen Low, salmon pink; Red Ensign; Sir Edward Mackay Edgar, bright crimson; White Pearl, and Duchess of York, salmon pink, pencilled with reddish salmon. A miscellaneous collection of flowering greenhouse plants were also staged by this firm (Silver Banksian Medal).

Messrs. J. Carter and Co. had a very pleasing display of baskets of miniature Hyacinths in rose, white, pale blue, and pale yellow colours, and a large mound of the pretty Primula malacoides Princess Mary was also included, together with Primula stellata in many shades of colour, and Tulips Mon Tresor, yellow, and Vermilion Brilliant, scarlet (Silver Banksian Medal). Mrs. O'Hea (gr. Mr. Shambrook), Barford, Warwick, showed well-grown specimens of white and coloured Cyclamen (Silver Banksian Medal), and a large display of this flower was also staged by The Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Elstree, about one hundred and fifty pots being shown and representing many shades of colour (Silver Banksian Medal). The same exhibitor also sent fine examples of Berberis japonica Bealei. Six plants, of Primula calciphila, representing a batch raised from seeds saved at Kew in June, 1922, were shown by L. Sutton, Esq. Reading. The flowers are of pale lilac colour with greenish-yellow centre, and the plant resembles P. stellata in habit of growth.

Freesia refracta alba and Hyacinths General Van Hayden, blue; L'Innocence, white; and Queen Wilhelmina, pink, were staged in quantity by Messrs. R. and G. Cuthbert (Bronze Banksian Medal); while from Baron Schröder (gr. Mr. E. J. Henderson), The Dell, Englefield Green, came a magnificent collection of Hippeastrums, arranged in two large groups by the sides of the doorway under the gallery (Silver-gilt Banksian Medal).

A magnificent display of Alpines in pots was exhibited by M. Fenwick, Esq. (gr. F. Tustin), Stowe-on-the-Wold. Rarely have we seen such splendid specimens of Saxifraga burseriana Gloria, a mass of white blooms; S. Grisebachi, a very good form; S. Faldonside, bright yellow; S. Irvingii, in fine condition, and S. lilacina, a pretty flower. Other outstanding pans were those of Primula Winteri, Narcissus cyclamineus hybrid, Cyclamen ibericum Atkinsii rosea, Anemone blanda, Bulbocodium vernum and Crocuses in variety (Silver-gilt Banksian Medal).

Messrs. Barr and Sons showed a miscellaneous collection of hardy bulbous and greenhouse plants, including Lachenalia Siam, Crocus violaceum, C. Sieberi, Narcissus cyclamineus, and N. minimus (Bronze Banksian Medal).

From Messrs. R. Tucker came a collection of Alpines in pots chief among which were Saxifraga Obristii, S. burseriana sulphurea, S. Faldonside, and Primula Juliana (Bronze Banksian Medal), while Messrs. John Waterer, Sons and Crisp, Limited, showed a bright collection of hardy plants of which Iris stylosa, I. sind-pers, I. reticulata, Sisyrinchium grandiflorum, and Scilla siberica are a selection (Silver Banksian Medal).

Messrs. J. Cheal and Sons, Ltd., planted a small rock garden with suitable plants, including Soldanella alpina, Saxifraga Jenkinsae, a large flower of blush-pink colour; Primula Wanda, and Saxifraga Stracheyi. The same firm also staged a collection of hardy trees and shrubs, including Hamamelis japonica arborea, the fine-leaved Retinospora ericoides, Salix daphnoides, Parrotia persica, together with numerous Conifers (Silver Banksian Medal).

The Orpington Nurseries also contributed a collection of ornamental shrubs, the Conifers being represented by fine specimens of Cupressus Lawsoniana Allumii, C. L. Fraseri, Juniperus chinensis albo spicata, Picea pungens glauca Kosteriana, and Abies balsamea hudsonica.

Primroses and Polyanthuses in many shades of colour were staged by Mr. G. W. Miller, and close by Messrs. Pulham and Son exhibited a rock garden planted with Saxifragas, Primulas, Irises, and ornamental evergreen shrubs. Messrs. Baker and Co. made a feature of Saxifraga burseriana Gloria, Anemone angulosa, and Anchusa myosotidiflora in their display of hardy flowers, while Messrs. Skelton and Kirby and the Misses K. and E. Hopkins also showed small rock gardens.

A very pretty rock garden was staged in a corner of the Hall by Messrs. W. Cutbush and Son who used Tulipa Kaufmanniana Brilliant, Garrya elliptica, Azalea Hinomanyo, Andromeda polifolia, and Helleborus niger major with good effect (Bronze Banksian Medal). A collection of conifers and flowering shrubs was grouped by Mr. G. G. Whitelegg, and Mr. H. G. Wood was responsible for a neat display of rock garden plants which included the deep crimson double Primrose Madame Pompadour.

Mr. Reuthe had, as usual, an interesting collection of hardy plants and shrubs, chief of which were Rhododendron moupenense, Hamamelis japonica rubra, Anemone palmata, with clear yellow flowers, Iris histriodes major, Eranthis cilicica, and Crocuses in variety (Silver Banksian Medal). Messrs. Carter Page and Co. planted a rockery with drifts of Saxifragas, Cyclamens, Primulas, and Irises, and a unique collection of hybrid Saxifrages of the Kabschia section was exhibited by Mr. Maurice Prichard.

Miss E. Heathcote showed a good collection of Violets, and especially noteworthy were Princess of Wales, of large size borne on long stems; New York, a pale double flower, and Lloyd George, of a deep shade of violet and possessing a conspicuous centre. Other exhibitors of this popular flower were the Misses Allen and Brown, who showed White Czar, Comte de Brazza, double white, La France, and Coeur d'Alsonse, rose-lavender (Bronze Banksian Medal), and Mr. B. Pinney, who staged Princess of Wales and the new Tiny Whitaker variety. Mr. Maurice Prichard had a unique collection of hybrid Saxifragas of the Kabschia section.

From Mr. J. Klinkert came a collection of topiary specimens in Box and Yew.

Narcissus and Tulip Committee.

Present: Messrs. E. A. Bowles (in the Chair), George Monro, Reginald Cory, F. Herbert Chapman, Charles H. Curtis, J. W.

Jones, Geo. Churcher, W. Poupart, W. B. Cranfield and R. Ashcroft (Hon. Sec.)

This was the first meeting of the Committee for the year and there was little business to do; no new Daffodils were submitted and only one group.

Messrs. R. H. BATH, Ltd., displayed forced Tulips, Hyacinths and Narcissi, in bowls of fibre. Amongst Tulips were the varieties William Copland, Clara Butt, which is extremely early for this variety; Diana, a fine early white sort with long stems; Brunhilde, cream splashed with yellow, and Van der Neer, deep rose lilac. Of Polyanthus Narcissi, Orange Cup, a very free flowering variety, and Majestic were shown in fine form. (Silver Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (Chairman), J. Cheal, W. Poupart, H. S. Rivers, P. C. M. Veitch, Geo. F. Tinley, W. F. Giles, A. Bullock, A. Metcalfe, G. Reynolds, H. Markham, F. Jordan, E. Beckett, G. Woodward, A. C. Smith, G. Kelf, D. J. Weston, E. Neal, W. H. Divers, E. A. Bunyard, T. Pateman, A. N. Rawes, and S. B. Dicks.

A seedling Orange raised from the variety William Irving, which received an Award of Merit in 1922, was shown by A. S. SMITH, Esq. (gr. Mr. J. Quartermain), The Lodge, Silvermere, Cobham. The tree, which had not been grafted, was raised from seed sown in 1907, and is said to crop heavily. The fruit is of medium size, and has a rather thick skin. Although the flesh is sweet and juicy the seedling did not, in the opinion of the Committee, show any improvement on existing varieties.

Messrs. J. CHEAL AND SON, LTD., showed culinary Apple Crawley Beauty, in fine condition, this is a long keeping sort which is available until May.

Messrs. T. RIVERS AND SON exhibited a very large collection of Oranges, Lemons and other Citrus fruits, for which a Silver-gilt Hogg Medal was awarded. These exhibits of Oranges by Messrs. Rivers always give a striking note to the spring fortnightly meetings and visitors were greatly interested in the large trees, carrying, in one case, so many as fifty-five fruits. The largest specimens were growing in tubs and there were other smaller trees and bushes in pots. The tree referred to as having fifty-five fruits was Imperial Lemon, and there were other big trees of Sustain Orange, Bittencourt St. Michaels Orange, and Citrus medicago, the last with very large fruits like huge Lemons. Large numbers of varieties of Oranges and Lemons were represented by gathered fruits, such as Thomson's Improved Navel, Botellia Orange Long Orange, Citron of Paradise Orange, and Silver Orange; in addition to Oranges there were Shaddocks, Sweet Limes, and various Lemons.

Messrs. BUNYARD and Co. exhibited their usual collection of Apples, representing the finest sorts in season, those displayed on this occasion being Brownlee's Russett, Rosemary Russett, Braddick's Nonpareil, Mannington's Pearmain, Baxter's Pearmain, Heusgen's Golden Reinette, Hormead's Pearmain, Reinette du Canada, Sir John Thornycroft and Round Magnum Bonum.

Messrs. SUTTON AND SONS showed a collection of vegetables representing the most useful hardy winter kinds and varieties. The exhibit included several varieties of Onions, including Long Keeping, Ailsa Craig, Round Globe, A.1, Improved Reading and Cranston's Excelsior, all shapely, solid, well-kept bulbs. Broccoli were also fine and included Superb Early White, Winter Mammoth and Christmas. The inclusion of variegated Kales gave a fine touch of colour to the collection, which contained many sorts of Potatos, Beets, Celeriac, Parsnips, Scorzonera, Chicory, Salsafy, Black Spanish Radish, Garlic and Dandelion. (Silver Knightian Medal).

ANNUAL MEETING.

THE annual general meeting was held in the Lecture Room at 3 p.m. and was attended by about one hundred and fifty Fellows of the Society. The minutes of the previous annual meeting were read and confirmed and one hundred and fifty-seven new fellows, four associate fellows, and five affiliated societies were elected. After the notice convening the meeting had been read, the Report of the Council was presented by the President, Lord Lambourne, who, in his remarks, said that he had travelled six thousand miles in order to be present at the meeting. During the year 1923, said his lordship, the Society had prospered beyond all expectations. The shows maintained a high degree of excellence, and to meet the demand it had been decided to increase the area under canvas at Chelsea this year and also to provide a band to play in the Ranelagh Gardens, where Messrs. J. Lyons and Co., Ltd., would have charge of the catering department. Other matters were also touched upon. The adoption of the Report was seconded by Mr. T. C. Musgrave, the Treasurer of the Society, who briefly commented upon the sound financial position of the Society, and stated that there had been an increase in annual subscriptions of £3,100 over the previous year. The expenses of shows had been heavy, but in spite of the inclement weather experienced at Chelsea the income of all the shows exceeded the expenditure by roughly £250. The sum of £15,000 had been placed in the General Reserve Fund and £500 had been put aside for insurance against bad weather at the big shows. The work of the Society had increased rapidly within the last few years, and the brunt of the extra work fell on the shoulders of the Secretary and the Director of Wisley—two hard-worked men—and he desired to place on record an appreciation of their work. The motion was carried unanimously.

The next item was that dealing with the proposed erection of a new hall. The President stated that the present building had become totally inadequate, not only for the fortnightly shows but also for the office work and library. The Council had set up a Committee to make enquiries and to view possible sites for a new building and a piece of land had been found in close proximity to the present hall and on which it would be possible to build a hall twice as large as the present building. Committee rooms would also be provided and the old building would be retained for the library, offices, and lecture room, which would be increased in size. He had pleasure in moving that the meeting approved of the policy of the Council and authorised it to proceed with the scheme. In seconding, Mr. T. C. Musgrave gave further explanation of the scheme and said that if negotiations for the proposed site could be carried out successfully, the cost of the new hall would be well within the resources of the Society. Mr. R. W. Wallace spoke enthusiastically of the policy of the Council and asked them not to be too cautious of the scheme. He hoped they would make the new building a large home of horticulture where kindred societies could be accommodated. Mr. Yeld also expressed the view that the Council should proceed with the work without delay. The proposal was carried by a very large majority. Lord Lambourne, Mr. G. Monro, and Mr. C. G. A. Nix were declared elected as members of the Council and the President then presented the Victoria Medal of Honour to Mr. N. F. Barnes, Mr. T. Hay, Mr. Chas. E. Pearson and Mr. F. J. Hanbury; Mr. Sydney Morris and Mr. A. Grove, other recipients, were unavoidably absent. Veitch Memorial Medals were presented to Mr. E. A. Bowles, Mr. Irwin Lynch, Mr. John Heal, Mr. J. O'Brien, Mr. S. Morris, Mr. T. G. Hodgson, Mr. W. Dallimore and Mr. A. B. Jackson. The meeting concluded with a hearty vote of thanks to the President.

Obituary.

W. J. Townsend.—It is with deep regret we learn of the death of Mr. William Joseph Townsend, who for nearly fifty years resided in the Reading district and for thirty-six years of that period was gardener to the late Sir William Farrar, at Sandhurst Lodge. Mr. Townsend was a most capable gardener, a capital speaker, and always delighted to impart his knowledge if it could be of any assistance to other members of the craft. For the past eleven years he had lived quietly at Woodside, Lower Wokingham Road, but his interest in gardening never failed. He died on the 23rd ult., passing away peacefully while sitting in his armchair. Very many gardeners now occupying good positions will remember with gratitude the assistance they received from Mr. Townsend, who associated himself with all the horticultural activities of the Reading district. At the funeral there was ample evidence of the high esteem in which Mr. Townsend was held, not only by horticulturists, but others who appreciated his many fine qualities. Beautiful floral tributes were sent by the Reading Gardeners' Association, the Crowthorne and St. Sebastian's Horticultural Society, and many friends, in addition to those contributed by the members of his own family.

T. J. Wakelin.—Many gardeners will learn with deep regret of the death of Mr. Thomas James Wakelin, who, after holding various positions as gardener, was for many years a traveller for Messrs. J. Laing and Sons, of Forest Hill, and later was traveller for Messrs. Waterer, Sons and Crisp, Bagshot Nurseries. Mr. Wakelin was a man of fine appearance and pleasing personality, and until recently was a regular attendant at the meetings of the Royal Horticultural Society, as well as the principal exhibitions throughout the country. He had a very wide circle of friends who will regret to hear that he has passed away. The funeral took place at Old Ealing Church, South Ealing, on Thursday the 14th inst.

ANSWERS TO CORRESPONDENCE.

TRAINING A FRUIT TREE: *J. A. A.* To obtain the type of fruit tree you require is very simple, provided the following details are carried out with a maiden tree. The bud or graft from the first year's growth should be pinched out at the desired length of stem during the growing season. The next spring three or four strong growths will develop and these should then be trained on wire, bent over to form the ground work of the tree as in your diagram. By stopping these growths again in the autumn you should be able to build up the tree, but the leading shoots will still require training. The buds not required and those awkwardly placed should be removed. It is often necessary, to obtain a break in the right place on horizontally trained trees, to insert buds of the same variety during early August. This practice could also be followed in your case, provided sufficient growths cannot be obtained.

UNDEVELOPED TULIP BLOOMS: *H. J. W.* It is difficult to account for the blooms not developing, although the trouble is a fairly common one. The bulbs sent for examina- were small and may have only contained small embryo flowers which would not respond to forcing conditions. Tulips will not respond to hard forcing. The bulbs should be boxed early and the variety William Copland should not be housed before the middle of November. The temperature of the house at first should not exceed 50°, gradually increasing it to about 65°-70°. Water should be given freely and the atmosphere of the house kept moist.

Communications Received.—P.J.R.—M.S.A.—J.D. H.C.C.—Vandenberg.—F.G.—T.E.F.—R.A.—Thirty-five years subscriber.—H.C.C.—E.M.H.—H.H.—J.D.—G.B. H.B.—J.S.—C.F.

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Gardeners' Chronicle

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 40·9°.

Actual Temperature:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 20 10 a.m.: Bar, 30.4°; temp. 38° Weather—Cold and dull

Self-Sterility of Cherries, Apples, and Plums.

All cultivators of top fruit will read with interest and profit the Report of Mr. Crane's investigations of the phenomenon of self-sterility exhibited by different varieties of Plums, Cherries, and Apples. The work on this important subject has been carried on at the John Innes Institute for the past twelve years, and the conclusions arrived at are, at all events, so far as they concern the orchardist, final and decisive. With the information contained in this Report before him, the fruit grower has only himself to blame if he fails to obtain full crops by omitting to take the simple precaution of interplanting self-sterile or partially self-sterile varieties with occasional pollenisers, or what perhaps may do equally well, keeping bees in his orchard so that they may effect cross-pollenation between varieties and thereby ensure the production of as large a crop as the season and state of the trees will permit. The conclusions to which Mr. Crane's experiments lead, are that many varieties of fruit trees are completely self-sterile and fail altogether to set fruit when pollenated with their own pollen. No less important, and, indeed, from a practical point of view, even more important is the fact that many other varieties, albeit, not completely self-sterile, fail always to produce a satisfactory crop of fruit when self-pollenated. By self-pollenation, in this case, is meant not only pollenation by means of "own" pollen, but also by means of pollen from another tree of the same variety. Among Cherries, all the Sweet Cherries—the Bigarreau and the Guigne (Prunus avium) sections—are self-sterile, whereas, the sour Cherries (P. Cerasus) and the Duke varieties are in a varying degree self-fertile. The tabulated records of experiments in self-fertilisation of different varieties of Sweet Cherry — and the experiments ran into thousands—show that except for Morello, Late Duke, May Duke, Royal Duke, and a variety known as Kentish Red A, all the varieties of Cherries tested failed absolutely to yield crops with their own pollen. Moreover, it is useful to note of the several varieties known as Morello, one, at all events, is very self-sterile. Although with Apples there are fewer varieties which are absolutely self-sterile, a large number of kinds commonly grown is partially self-sterile. The complete self-sterile varieties are Brownlees Russet and Royal Jubilee; the partially self-sterile varieties are Beauty of Bath, Bismarck, Blue Pearmain, Cox's Orange Pippin, Duke of Devonshire, Encore, St. Edmund's Russet, Grenadier, King's Acre Pippin, Lady Sudeley, Lane's Prince Albert, Lord Grosvenor, Newton Wonder, Nonsuch Paradise, Norfolk Beauty, Northern Greening, Sturmer Pippin, Winter Ribston and Worcester Pearmain. Although varieties in this category give fruit when self-fertilised, none of them produce a set of four per cent.—which is taken to represent a full crop—unless pollenated with another variety. One example taken from Mr. Crane's tables of tests appended to the Report must suffice to show the magnitude of the difference of the results obtained by selfing as compared with crossing Cox's Orange Pippin:—Number of flowers self-pollenated, 3,486; number of fruits set, $32 = 1\%$; number of flowers cross-pollenated, 1,716; number of fruits set, $130 = 7.7\%$. In other words self-pollenation results at best in a quarter of a crop, whereas cross-pollenation by another variety—and some eight different varieties were used as pollen parents—gives a full crop. It is interesting to note, however, in the case of Cox's Orange Pippin, that self-sterility appears to decrease with age, albeit not to an extent sufficient to ensure a crop when cross pollenation is not ensured. The only varieties of Apple which give crops when self-pollenated are Antonowka, Bramley's Seedling, Crimson Bramley, Golden Spire, Lord Derby, Rev. W. Wilks, St. Everard, and Stirling Castle; and of these in particular, Stirling Castle, Rev. W. Wilks and Bramley's Seedling may be relied upon to give full crops, even though planted in pure stands. The case of Golden Spire is interesting. It appears able to form fruit which, however, is seedless—without pollenation, and this apogamous behaviour not unknown in other plants appears to occur in certain other Apples. One other point is, perhaps, significant, whereas both Bramley's Seedling and Crimson Bramley—which is, we believe, a sport from the former—are self-fertile, Bramley's Seedling, judging from the tests recorded would appear to be distinctly more self-fertile than its sport. If further tests confirmed this result it would be of some interest in the theoretical consideration of the origin of self-sterility. Plums fall into categories similar to those already enumerated for Apples. The self-sterile varieties are:—Bryanston Gage, Cambridge Gage, Coe's Golden Drop, Coe's Violet, Crimson Drop, Jefferson, Kirke's Blue, Late Orange, Late Orleans, McLaughlin's Gage, Old Greengage, Pond's Seedling, President, Prune d'Agen, Transparent Gage and Yellow Magnum Bonum. The partially self-sterile varieties are:—Belgium Purple, Cox's Emperor, Early Orleans, Rivers Early Prolific, and Frogmore Damson. The self-fertile sorts include Early Transparent, Gisborne's, Goliath, Guthrie's Late, Pershore, Prince of Wales, White Magnum Bonum, Farleigh Damson and King of the Damsons. So much for the immediately practical side of Mr. Crane's valuable work. Another aspect of it, namely, the incompatability of certain Cherries and Plums, that is, their failure to produce a crop when crossed, though no less, or even more interesting, than the facts of self-sterility, must be left for consideration on a future occasion.

Honour for Lord Ullswater.—Viscount Ullswater, who is better known to many as the Hon. James Lowther, was presented with the freedom of the City of London in a gold box on the 14th inst., in recognition of over sixteen years service as Speaker of the House of Commons. Lord Ullswater is a keen gardener and is present at most of the fortnightly meetings of the Royal Horticultural Society, of which Society he is a vice-president.

Honour for Mr. C. Harman Payne.—We have just been informed that the French Government, in consideration of his many services to horticulture, but more especially in recognition of his co-operation as Commissary General of the British Section of the International Horticultural Show at Le Mans in 1921, has promoted our old correspondent, Mr. C. Harman Payne, to the rank of Commander of the Order of the Mérite Agricole. The official appointment was accompanied by letters of confirmation from the Prefect of the Garthe, the Mayor of Le Mans and others. Mr. Payne has the rather unusual distinction of now having held every rank in the Order, for he was appointed Chevalier in 1896; Officer in 1902, and now Commander. It will be remembered that about twelve years ago Mr. Payne was awarded the Academic Palms, and thus became Officer of the Public Instruction.

Orchid Illustrations in "Gartenschonheit."—The well-known Berlin horticultural journal *Gartenschonheit* includes, in the January issue, four plates in colour, on art paper, of Orchid hybrids, as well as a number of excellently reproduced black and white illustrations. The first coloured plate represents a cross between Cattleya Bowringiana and C. maxima floribunda obtained at the Nymphenburg Botanic Garden, Schönbrunn, near Vienna. The next shows the pretty Laelia Latona, raised by crossing L. purpurata with L. cinnabarina. Another plate shows an unnamed hybrid between Laelia cinnabarina and Cattleya gigas, of a pure, clear yellow, raised at Nymphenburg, and a fourth shows the result of a cross between L. cinnabarina and Cattleya Schröderae, of brilliant orange tones, so well reproduced, that it is difficult to believe that it has lost much in representation, hard though it usually is to transfer nature's colours to paper. The black and white plates are also good, especially those of Angraecum Chailluanum and Odontoglossum harvengtense. It is a pity that there are several errors in the titles of the illustrations, especially as the paper is said on the cover to be specifically for the "Fachmann"—an untranslatable word, usually implying some degree of technical knowledge; and the editors, Messrs. Foerster and Schneider, have more than a national reputation as horticultural botanists.

Report on Tests of Self-Sterility and Cross-Impatability in Plums, Cherries, and Apples at the John Innes Horticultural Institute. (ii). *Journal of Pomology and Horticultural Science.* iii. April 2. 1923.

Swanley Horticultural College.—A fête in aid of the Development Fund of the Horticultural College, Swanley, will be opened by Lady Fitzgerald at 2.30 p.m., on Saturday, March 1. Dramatic entertainments will be given by the students at 3 p.m. and at 5.30 p.m. A dance and whist drive will be held in aid of the fund on the evening before the fête.

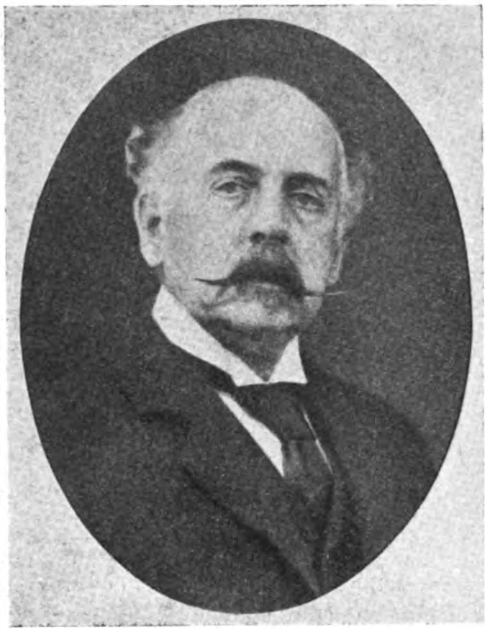
Masters' Memorial Lectures.—The two Masters' Memorial Lectures arranged in conjunction with the fortnightly meetings of the Royal Horticultural Society on March 11 and 25, will be delivered by Professor A. C. Seward, M.A., F.R.S. The first lecture will be given on "Arctic Vegetation Past and Present," and the second, on "Plants as evidence of Climatic Changes."

An Allotment Dispute.—In 1893 the Corporation of Leeds purchased some five acres of land for the purpose of permanent allotments, and the Corporation now proposes to sell the ground for a factory site. The allotment holders have resisted the proposal to sell and have enlisted the support of the National Union of Allotment Holders. It has been decided to take steps to consider the legal aspect of the question, for the rent paid by the holders has been sufficient to include a sum towards the redemption of the land.

"Geo. Monro, Ltd.," Concert.—The twenty-fifth annual Bohemian concert arranged by the George Monro, Ltd. Concert Committee, was held at Queen's Hall, Langham Place, on Thursday, the 14th inst. The concert was well attended and the audience included large numbers of well-known men in Covent Garden besides those belonging to Messrs. Monro's firm, and also several prominent trade growers. The whole of the proceedings were extremely pleasurable for besides a splendid programme of vocal and instrumental music, the large hall was beautifully decorated with flowers and plants for the occasion by Messrs. Wills and Segar; the flowers on the tables in the arena were kindly presented by Messrs. Lowe and Shawyer, Ltd. Whilst the concert is in no sense a charity function, the Committee usually makes donations from the profits to institutions of a deserving nature; last year gifts of money were made to the Gardeners' Royal Benevolent Institution, the Royal Surgical Aid Society and the Charing Cross Hospital.

Gift of a Horticultural Library.—The residents of Hove are to benefit by the very valuable gift of a horticultural library which has recently been made by the Viscountess Wolseley. The Hove Town Council, in accepting the offer, has decided to apply for Government sanction to a loan of £1,000 for thirty years, to enable the present library to be extended and so meet with Lady Wolseley's proposal to establish a reference room and museum for the use of the public, dedicated to horticulture and agriculture, in memory of her late father, Field-Marshal Viscount Wolseley. At the present time the nucleus of Lady Wolseley's library consists of about three hundred volumes chiefly relating to horticulture, as well as a large collection of coloured garden plans and several thousands of book plates in portfolios. The donor has expressed a wish to decorate and furnish the new rooms, and hopes that the proposed new library, which will be known as the "Viscountess Wolseley Library," will embrace everything relating to Sussex horticulture and agriculture. The many items included in the gift will be on loan during her ladyship's lifetime and are to be left to the Corporation on her death, to be kept permanently in the two rooms together with the remainder of her collection of books, pictures, etc. Lady Wolseley has also provided in her will that when a tenant for life and an annuitant have died, the capital, representing a yearly sum of between £800 and £1,000, shall be handed over to the library.

Mr. Henry Stevens.—Stevens's Auction Rooms, King Street, Covent Garden, have played a very important part in the history of horticulture for more than one hundred years, as they have been the medium through which many fine plants, and especially Orchids, have been introduced to our gardens. The firm was established in 1760, and the rostrum has been occupied by Mr. Henry Stevens for the past sixty years, yet few would suspect that he was in his eighty-second year, and even now-a-days he is frequently engaged in the rostrum from 12.30 p.m. to 7 p.m., showing that he possesses exceptional vigour for a man of his years. To record the many and varied articles of interest that he has disposed of by auction would require many pages of the *Gardeners' Chronicle*, for curiosities from every quarter of the globe flow into these famous auction rooms, ranging, as described in a contemporary, from "Paul Kruger's Hat to seeds of the big trees of California" The first seeds of Wellingtonia were sold by Mr. Stevens' father at thirty guineas an ounce and Mr. Stevens informed us that there are ten thousand of these seeds to an ounce. But it is in connection with the sale of Orchids that Mr. Stevens and his firm are most closely connected with horticulture, for although large numbers of bulbs, evergreens, Roses, and fruit trees are auctioned at King Street in their seasons annually, the auction sales of Orchids, and especially those of a decade or so ago, are chiefly responsible for the name of Stevens being so well known to gardeners. Mr. Stevens had many episodes to relate in connection with his sales of Orchids, when he called to visit us recently. For example: he told how a small plant of Odontoglossum Pescatorei, sold for 4s., proved to be the first yellow-flowered O. Pescatorei, which Mr. Stevens repurchased from the original buyer for one hundred guineas and resold for one hundred and sixty guineas. On another occasion a small piece of Masdevallia Harryana, consisting of about two leaves and a flower spike, was swept up in the rooms after a sale, taken home by Mr. Stevens and grown on. It proved to be one of the finest forms of Masdevallia Harryana and when sold under the hammer realised twenty-eight guineas. Many of the importations of Orchids made by Messrs. Sander and Messrs. Hugh Low and Co., were disposed of by Mr. Stevens and these included numbers of new and choice plants, for which, in many cases, large sums were realised. Mr. Stevens's rooms are also the rendezvous of ethnological, entomological and bibliographical experts, and important collections of birds, birds' eggs, insects, butterflies, and valuable books on natural history are continually being sold in this well-known establishment. Mr. Stevens is recognised as a past-master in the art of photography and those who care to visit his auction rooms will find examples of his photography hung on the walls. So far back as 1882 he won the London Medal offered for flower photography and he also won the prize of twenty guineas offered by the *Daily Graphic* twenty years ago for the best amateur photograph, which many may remember under its title, "Worn Out." A fine example of Mr. Stevens's photographs was reproduced as a supplementary illustration in *Gard. Chron.*, February 10, 1883. The photograph of Mr. Stevens reproduced herewith is a recent one taken by himself. Mr. Stevens is publishing his personal reminiscences, together with some accounts of famous sales held in Stevens's rooms during the last hundred years in *A Romance of the Rostrum*. The work is being issued by subscription and will be published by Messrs. H. F. and G. Witherby, 326, High Holborn, W.C.1.



MR. HENRY STEVENS.

Kew Guild.—The Annual General Meeting of the Kew Guild will be held at 6 p.m on May 28th, at the Imperial Hotel, Russell Square, W.C., and will be followed by the Annual Dinner at 7.15 p.m. Mr. M. T. Dawe has accepted the position as President of the Guild for the ensuing year.

Royal Gardeners' Orphan Fund. Mr. F. C. Stainsby, The Gardens, Brocklesby Park, Lincolnshire, organised a social evening in aid of the funds of the Royal Gardeners' Orphan Fund on January 23rd, and as a result of his efforts he has forwarded a sum of £20 to the Secretary of the Fund. The proceedings included a whist drive and dance, and Mr. Stainsby himself wrote the tickets and bills announcing the event, so that apart from the expenses of the hall the whole of the profits were available for the orphans. Mr. T. H. Cook, Royal Gardens, Sandringham, also organised a social evening in aid of this fund for gardeners' orphans, and the profits, amounting to over £11, have been forwarded to the Secretary. At the recent meeting of the Royal Caledonian Horticultural Society a sum of £10 was voted to this gardening charity.

Broccoli Trial at Wisley.—The Royal Horticultural Society will carry out a trial of Broccoli during the next season. A packet of each variety for trial should reach the Director, R.H.S. Gardens, Wisley, Ripley, Surrey, by March 15, 1923.

Yorkshire Gala.—Owing to the refusal of the Lunacy Commissioners to allow the Yorkshire Flower Show and Gala to be held this year in the Bootham Park, there was a prospect of this year's show having to be abandoned. We are glad to learn, however, that the Committee has accepted the offer of the York City Football Club to allow the show to be held on the Club's ground at Fulford Gate. We understand that the site is not equal to that of Bootham Park, but it possesses several advantages and we congratulate the Society in being able to make provision for holding the show as usual. At one time there was a suggestion that the Yorkshire Agricultural Society should hold its show in connection with the York Gala, but the proposal has been abandoned. The York Gala is one of the most important of the provincial exhibitions and has been held over a period of sixty years. At the annual meeting held recently, Mr. T. G. Hodgson was re-elected Chairman of the Council, Mr. J. J. Hunt, Vice-chairman, and Mr. A. Proctor, Hon. Treasurer.

Award of the George Robert White Medal.—The Massachusetts Horticultural Society has awarded the George Robert White Medal of Honour to Mr. John McLaren, Superintendent of Golden Gate Park, San Francisco, California. The award is made in recognition of Mr. McLaren's remarkable achievements in the horticultural development of the Pacific Coast. It is gratifying to know that Mr. McLaren is a native of Great Britain; he was born near Stirling, on December 20, 1846. He studied landscape gardening as a boy, and entered the Edinburgh Botanical Gardens as an under gardener. He left this country and settled in California as a young man, and resided at San Mateo for many years. When he took charge of the Golden Gate Park, few would have considered it possible to convert it into the beautiful resort it now is. Mr. McLaren is an author, and it is stated that his book, *Gardening in California: Landscape and Flower*, is the best of its kind in U.S.A.

Hot Water Treatment of Sugar Cane for Insect Pests.—The use of hot water for the destruction of insect and other pests attacking plants has long been known, and usually it has been found that a temperature which is lethal to the pest is not detrimental to the plant. Moreover, when the plant is in a truly dormant condition it will withstand a higher temperature than when root activity and growth has begun. Recently in America hot water has been used for the treatment of Sugar-cane infested with the moth borer (Diatraea saccharalis crambidoides) and the Sugar-cane mealy bug (Pseudococcus calceolariae). It has been found that with seed cane from which many eyes had sprouted and grown to a length of half-an-inch, did not possess the same resistance to the hot water treatment, for whereas dormant eyes were not affected by soaking in water at a temperature of 50° C. for half-an-hour, buds in the sprouted condition were killed or badly damaged when so treated.

Appointments for the Ensuing Week.—Tuesday, February 26 — Royal Horticultural Society's Committees meet; Newcastle and District Horticultural Society's lecture. Wednesday, February 27—Sheffield Chrysanthemum Society's meeting; Wimbledon Gardeners' Mutual Improvement Society's meeting. Thursday, February 28 — Royal Botanic Society's meeting. Friday, February 29—Manchester and North of England Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-Five Years Ago.—*A Caution.* We advise seedsmen and gardeners to beware. There is a gang of about a dozen fellows, located in Manchester and the neighbourhood, who are carrying on their swindling vocation with great assiduity. Their system is to write to the various seedsmen and gardeners in the South of England for seeds, roots, plants, etc., and to give references one to another; they are all penniless, and living upon their wits. There is also a smaller gang, located in Liverpool, who use the address, "Rainhill, near Liverpool," and are pursuing the same system. We have heard of one or two who have been victimised, but we hope our readers will see this paragraph, and act cautiously with orders from the places mentioned. The safest and shortest answer to such orders is to write for the cash before the goods are sent off, or to send the letters to any of the various Guardian Societies, for the inspection of the Secretaries, who can at once give the information as to the genuineness of the writers. We gave a list of the societies in a late number of the *Gazette*. Rhubarb plants are just now in great demand by these worthies. Ashen plants well applied to their backs would be a suitable acknowledgment of their intended favours. We advise our readers to copy this paragraph, and paste it in some conspicuous place in their counting houses, that the caution may not be lost sight of. *Gard. Chron., February* 24, 1849.

BULB GARDEN.

ALLIUM SPHAEROCEPHALUM.

The Round-headed Garlic, Allium sphaerocephalum, is an old plant in gardens, yet, like others of the genus Allium, it is not very widely grown. I was much interested to see a laudatory reference to it in Sir Herbert Maxwell's delightful book entitled *Flowers—A Garden Note-book*, and to see that it is his "favourite in the family."

I first knew the plant many years ago under the title of A. descendens, said to be so-called because the flowers on the globular head open from the top downwards, but A. sphaerocephalum is the recognised name.

It is a bulbous plant which grows from two to three feet high and has grassy leaves which wither before the flowers open; the round heads of flower are borne on slender stiff stems which require no support. The blooms are purplish and when the round ball of bloom is fully open the effect is decidedly quaint. I observe that Sir Herbert Maxwell refers to the penchant possessed by bumble bees for the flowers and how they "sleep peacefully on them, rocked by the summer breeze." I have often seen this and the handsome, big bees resting quietly on the flower-heads add much to their attractions.

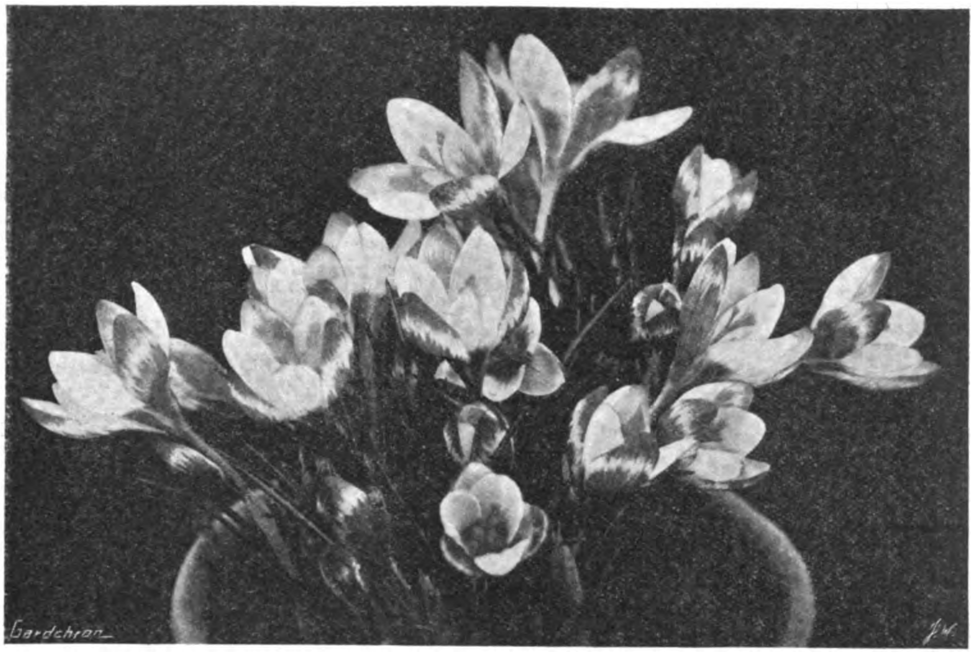


FIG. 40.—CROCUS SIEBERI VAR. HUBERT EDELSTEN, R.H.S.: FIRST CLASS CERTIFICATE FEBRUARY 12 (SEE P. 97).

A. spacerocephalum is not a common plant in catalogues, although not an expensive one where it is priced, and should be planted in autumn. As it does not flower until summer is well advanced and lasts a good while in bloom, it is all the more valuable on that account. It needs a fairly good soil, and looks best when it is growing through some other plant, such as, say, a Mossy Saxifrage or Arabis. I have grown it in very poor soil, but find it less satisfactory there than in a good garden loam that is not excessively dry in summer. *S. Arnott.*

FRITILLARIA PALLIDIFLORA.

I was interested to see *R. E. A.'s* note on this Fritillary. I used to grow it in my garden at York and much regretted its loss; I have never been able to obtain it since. I first saw the plant in Messrs. Backhouse's Nursery at York. On the famous rockery, above the pool, there grew a specimen which I observed for many years. It usually had four or five blossoms. I think if *R. E. A.* had seen it he would have agreed that it was beautiful. The bulb evidently needs to be well established ere the plant can show its full beauty. *G. Yeld, Gerrards Cross.*

COLCHICUM HYDROPHILUM.

This is one of the earliest, if not the earliest, of spring flowering Colchicums to produce its blooms. It is found growing wild in the Taurus Mountains, never at a lower elevation than 3,250 feet. The blooms usually appear towards the end of January and are a pale rose-lilac colour, the perianth segments at their bases being shaded with a deeper colour on the outside; the inside of the flower is marked with a pale yellow-zoned base. The foliage and flowers appear together, and at the time of flowering the leaves are about three inches long, attaining a length of at least six inches in their full growth. The flowers are produced in clusters and when the plant is left undisturbed so many as from twelve to fifteen flowers may be produced from one bulb. The stamens are about half the length of the segments and the anthers are of a chocolate-red colour before they burst.

As the name implies C. hydrophilum delights in moist soil and in its natural habitat it is found in spots which, during the early spring, are flooded with water from the melting snows. However, it will not do to provide bog-garden conditions because if the soil is kept continuously moist it is doubtful if the bulbs will flower, for they should be allowed to mature thoroughly when the growth dies down in the early summer. *R.*

TULIPA GREIGII.

Tulipa Greigii, a well defined species from Turkestan, is still somewhat scarce in cultivation, owing, doubtless, to the very few offsets the plant produces. The large flame-coloured flower, produced on a short stem, has a black base bordered with yellow and is one of the handsomest of all Tulip flowers.

The leaves are spotted or streaked with dark chocolate and add to the charm of a very beautiful species.

Wherever possible, it would be well to raise seedlings of T. Greigii and thus help to make this fine plant more plentiful in gardens, for it makes a very notable ornament in the rock garden or border of choice plants. *Ralph E. Arnold.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman Bart., Gatton Park, Reigate.

Shading.—If the blinds were removed from the Orchid houses at the end of last summer they should be again fixed in position, for shading may be necessary during a short time in the middle of the day. The winter has been exceptionally dull and sunless, and the growths of many Orchids are not well matured, therefore there will be great danger of the leaves becoming scorched by the sun's rays. This especially applies to such plants as Odontoglossums, Odontiodas, Masdevallias and Phalaenopsis. Laelias, Cattleyas with their many hybrids, and Dendrobiums will be safe without shading until a later date.

Re-potting. — The general re-potting of Orchids should be commenced about this time of the year, although in large collections there is always some such work to be done. But it should always be borne in mind that the best time for the operation is when fresh root action is commencing from the base of the young growth, or the previous year's pseudo-bulb. It is essential to use clean receptacles and they should be drained in such a manner that it is impossible for the plant to become water-logged. Whatever kind of material is used as a rooting-medium the question of watering needs great consideration and foresight, for the very best compost becomes sodden and sour if kept constantly wet.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Clematis.—Few hardy climbers provide such a gorgeous display of flowers during the summer as the garden Clematis. The pruning of several groups may now receive attention. The Jackmanii section may be cut back to within a foot or eighteen inches of the base of last year's growth provided the plants have been regularly pruned in this way. If, however, there is undue length of bare stem they may safely be cut back to within a few inches of this. Well-known Jackmanii sorts are alba, rubra, superba, Madame Edouard André, Ville de Lyon and Gipsy Queen. The lanuginosa Clematises form the most important group of all. They also flower on the current year's growth, but need rather less drastic pruning than the members of the Jackmanii group, and shortening the growths of the previous year to about half way or less is usually sufficient. Familiar varieties are Anderson, Henryi, Beauty of Worcester, Fairy Queen and Lady Caroline Neville. The members of the florida group flower on the shoots of the previous year and should not be pruned now but immediately after flowering, when some of the old growths may be thinned out. Belle of Woking, John Gould Veitch and Lucie Lemoine are all excellent varieties of this type. Similar pruning is also needed by the patens group, of which good varieties are Nelly Moser, Geo. Jackman and Fair Rosamond. The forms of C. Viticella, which have small flowers, are not so commonly grown though certainly deserving of wide cultivation. Madame Grange and Thomas Moore are two fine sorts. All the Clematises thrive best in a rich, friable loam, and the failure to establish them may often be traced to planting in heavy, undrained soil. Lime rubble and broken plaster may be used freely with great advantage when preparing the soil for planting, or in material used as top dressings.

Shrubs.—A large number of shrubs flower on the growth of the current year, and such shrubs need hard pruning in the spring. Buddleia, Caryopteris, Hydrangea paniculata, Hypericum, also several of the late flowering Spiraeas, such as S. Aitchisonii and S. Douglasii, should have weak growths removed entirely and straggling shoots cut back; S. japonica and its varieties may be cut right back every year. Willows and Dogwood grown for their coloured bark should be cut hard back now, and also Golden Elder, Golden Privet and similar plants grown for massed colour effects.

The Nursery.—The modern large garden is not complete without its nursery, which may also be used as a trial ground for the newer varieties of plants to see if they are suited to the district. Cuttings of trees and shrubs inserted in the autumn should be examined, and if frosts and thaws have raised them out of the soil they should be pushed back to a firm base and well trodden. Seedlings may be transplanted into nursery rows and larger plants which will remain for another year in the same position should have the surface soil about them turned in order to bury any weeds that may be present. If stocks for budding Roses and other flowering shrubs have not already been planted this should be done without further delay or they will not be sufficiently established for successful budding in July and August.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Tomatos.—The present is a suitable time to sow Tomato seed to raise plants for successional cropping to those that were planted last autumn for winter fruiting. Sow the seed thinly in pots or pans filled with an open compost, and stand the seed pan in a house or pit having a temperature of 60° to 65°. As the seedlings appear place them on a shelf near the roof glass, and provide ample ventilation. Pot the seedling on as required, and do not use rich manures in the potting compost.

Grape Room.—Examine carefully Grapes in store at short intervals with a view to removing any decaying berries; one decayed berry may contaminate several more. A temperature of 40° to 45° is the most suitable for Grapes in store, but during mild weather the temperature may rise above 45°. In that case no harm will accrue provided the room is kept dry with as small an amount of heat from the hot water pipes as possible

Cucumbers.—If Cucumbers are required at an early date in the spring, seeds should be sown now, following the method of sowing advised for Melons. The recent cold weather has not suited winter Cucumbers under ordinary conditions, but any loss of vigour in the plants should be counteracted by occasionally affording the roots a light top-dressing of fresh, loamy soil mixed with well-rotted leaf-mould and bone flour. Failing these materials, use loam mixed with horse dung. Neither liquid manure nor concentrated fertilisers will be needed if due attention is paid to top-dressing the beds. Where bottom heat is supplied by water pipes, the soil is apt to get dry rapidly and needs watering at short intervals; but when the bottom heat is derived from fermenting materials, wholly or partly, care is needed in affording water, or the roots will become inactive, and the soil sour. The amount of atmospheric moisture should be governed by the state of the weather, and syringing should only be practised on sunny mornings. During severely cold weather it is not advisable to heat the water pipes to excess to maintain the requisite temperature as it would create a dry, arid atmosphere, particularly during the night-time, and the consequent danger of a serious attack of red spider. The night temperature may range from 60° to 65° with 70° to 75° during the day. With sunshine the warmth may rise to 80°.

PLANTS UNDER GLASS.

By F. J. Clark, Gardener to Lt.-Col. Sir George Holford, Westonbirt, Tetbury, Gloucestershire.

Cyclamen.—Many Cyclamen plants raised from seed sown last August should be ready for transferring to small 60-sized pots. Good friable loam that has been rubbed through a half-inch sieve, with all the fibre possible retained, and leaf-mould in equal parts, with plenty of sharp sand added, provide a suitable compost for the plants at this stage. The pots should be scrupulously clean. Take care not to pot deeply; the tiny corms should be almost on the surface of the soil when they are potted. Seedlings from later sowings, if not large enough to pot singly, will be benefited by being pricked off into well-prepared pans filled with fresh compost. The plants, when potted, should be grown near the roof-glass in a light house, having a temperature of about 55°. Spray the plants several times daily and keep a sharp watch for the presence of red spider and aphis. The older plants of Cyclamen in flower should receive close attention in the removal of spent flowers (except in the case of any plant from which it is desired to save the seed). Attend carefully to watering: moisture should not be applied until the plant really requires it, then the watering should be copious. Feed the plants with weak liquid manure, or soot water, and give them an occasional top-dressing of Clay's fertilizer or any other suitable plant manure.

Flowering Plants.—To ensure a continuous supply of Carnation blooms, the plants in the flowering houses should receive careful and regular attention in the matter of disbudding and in the removal of superfluous growth. Old stems from which the flowers have been taken should be shortened to within a few inches of the base, leaving only two or three of the strongest shoots on each stem. To keep the atmosphere of the house buoyant, maintain a little warmth in the water pipes and admit a little air both night and day, except in foggy weather. The temperature of the house should be 55° to 58°. Although Carnations will thrive in a lower temperature than this, the higher temperature recommended, with a steady circulation of air, is necessary to produce a regular supply of flowers in winter. If the pots are well filled with roots, feed the plants occasionally by applying to the surface of the soil a slight dressing of a special Carnation manure or Clay's fertiliser. A small teaspoonful to each pot will be ample at this time of the year, and the fertiliser should be applied at intervals of not less than a fortnight. Well-diluted, clear soot-water is a good stimulant for Carnations. It should be applied daily during the course of a week to plants requiring water, so that all will have received the benefit of it in turn. Allow an interval of four or five weeks to elapse before using soot-water again. Keep a sharp watch for greenfly, and fumigate the house on its first appearance.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Figs.—Fig trees should now receive attention in the matters of pruning and tying the shoots. Reserve as much medium-sized, young wood as is needed to cover the wall, and in training the shoots allow plenty of space between them. All gross, rank-growing shoots, if they were not cut out during last summer, should be removed now, and shoots needed for extension either nailed or tied in, allowing room in the ties for the shoots to swell. To keep Figs in a fruitful condition the roots should be grown in a restricted area, or they will require constant root-pruning. In planting or top-dressing the trees mix plenty of old mortar rubble with the soil. When the work of training is completed, the old wood should, if necessary, be well washed with soft soap dissolved in warm water, or with Gishurst compound. If the trees are dirty they should be detached from the wall entirely and all the wood cleansed, taking care not to injure the embryo fruits. Figs usually develop sucker growths from the base, and the best of these may be tied to the old stems, thus protecting the latter from hot sun and furnishing the wall.

American Blight.—Prompt measures should be taken to eradicate this pest of the Apple. Methylated spirit or paraffin emulsion should be well worked into all crevices where the pest is harbouring, by means of a stiff paint brush, repeating the operation after a week or so if necessrry. Loose bark should be scraped off the trees and burnt, the surface soil under the trees removed, and, after a time, fresh soil substituted.

Spraying.—The winter spraying of all fruit trees should be finished by the end of February, as it is somewhat risky to prolong this work afterwards. Given a seasonable spring, the buds on early varieties will soon be on the move, and damage would ensue if a caustic specific should reach them when they are swelling.

THE KITCHEN GARDEN.

By Walter Y. Staward, Gardener to Mrs. John Feeney, The Moat, Berkswell, Warwickshire.

Onions.—Seedling Onions raised from seed sown as advised in a previous calendar are ready for transplanting into boxes filled with a mixture of good loamy soil, leaf mould, and sand; place 3 inches to 4 inches of well-rotted manure in the bottom of the box and press it level with a flat board before filling the box with the soil. The latter should be pressed fairly firmly, and especially in the corners of the box. Place the boxes containing the seedlings in an early vinery where the temperature is moderate. Spray the plants gently overhead in the early afternoons; this will afford ample moisture for the first few days.

Chives.—The leaves of this bulbous plant are very useful for flavouring soups and salads. The plants may be propagated readily from seeds, or by division of the roots, which may be done when the weather is open. The foliage may be cut freely, and this keeps the growth young and tender.

Jerusalem Artichokes.—The ground where this crop is intended to be grown should be forked over, and lines drawn 20 inches to 24 inches apart and 9 inches to 1 foot deep. Place the tubers 1 foot to 15 inches apart in the rows, and before filling in the soil apply a good dressing of wood ash; if the ground is of a heavy texture the wood ash will tend to lighten it.

Peas.—Another sowing of early Peas should be made on ground fully exposed to the sun's rays. The distance between the lines will vary according to the height of the variety sown. Make a shallow trench about 4 inches to 6 inches deep with a spade, keep the bottom of the trench level and sow the Peas evenly. Fill in the trench and leave the surface in a fairly rough condition.

French Bean.—From now onwards this useful vegetable may be produced fairly easily in frames on a hotbed made of fallen tree leaves and litter. When the bed has been made, place 12 inches of good soil on the surface and after a few days, when the heat is on the decline, sow the seed in the usual way, choosing a good early variety.

Celery.—To obtain early Celery a pinch of seed should be sown in pots and the seed germinated in a warm temperature. Place a sheet of glass over the seed pots until the seedlings appear, then stand them on a shelf near the roof-glass to ensure the seedlings growing sturdily.

INDOOR PLANTS.

PROPAGATION OF PERPETUAL-FLOWERING CARNATIONS.

Owing to the severely economical conditions under which many gardens have to be managed, a number of choice flowering plants, formerly grown, have disappeared. The perpetual-flowering Carnation, however, is still within the reach of all who have a suitable house to grow them in, as very little artificial heat is required to maintain the necessary temperature. The time for propagation depends upon when blooms are required and when the best cuttings are available. I prefer to insert cuttings in January or early in February, as they are more succulent then than at the end of the summer, and root quickly. If struck at this period good plants should result for flowering from September onwards.

One of the chief points in successful Carnation growing is the selection of cuttings. A good beginning is half the battle, hence the need of selecting suitable cuttings. Frequently three shoots are found on one stem. The top one is really a continuation of a side shoot, and if used as a cutting will never make a robust plant. The basal growth often proves as bad as the top one: it is difficult to root, and if rooted it fails to break freely because it is really a flower shoot, and thus hard in the stem. Further, to retain a well-balanced plant, the basal shoot, if rightly placed, should not be removed. The middle shoot, however, possesses all the desirable qualities for making a strong, robust plant, and should be taken off with a heel, and have the base smoothed somewhat with a sharp knife before inserting it.

In methods of propagating perpetual-flowering Carnations, much difference of opinion exists, but whatever method is resorted to, it is well to remember that the Carnation is one of the hardiest of greenhouse plants, and its constitution should not be impaired by the excessive use of fire-heat. The aim should be at all times to build up a strong stock so that trouble from rust and other diseases or pests is reduced to a minimum. A house with a night temperature of 45° to 50° is suitable for propagating in. The stage should be covered with shingle or similar moisture-holding material.

The following dimensions of a box-frame for placing on the top of a stage may be found useful and effective. The length may be according to requirements. The width, however, is conveniently 2 feet 1 inch, and the depth 11 inches. A central sash is run through the frames and let in at the ends to take the glass panes, which should overlap half-an-inch, so as to be easily lifted and turned. Small boxes should be made to fit in the frame 1 foot square and 2 inches deep, with one end removable to allow the rooted cuttings to be lifted without injury to the roots. A suitable compost for cuttings consists of sifted loam, leaf mould, and sand in equal proportions. Make the soil in the boxes moderately firm and sprinkle sand on the top of it. After the cuttings have been inserted they should be watered thoroughly, placed in the frame, and kept close; the glass should be turned each morning to allow the escape of condensed moisture. In about three weeks the cuttings should be rooted, when air may be admitted by sliding the glass along as required. If boxes are used as advised, it is a good plan to fill each with one variety only. *T. Baines, The Gardens, Langham Oaks, Colchester.*

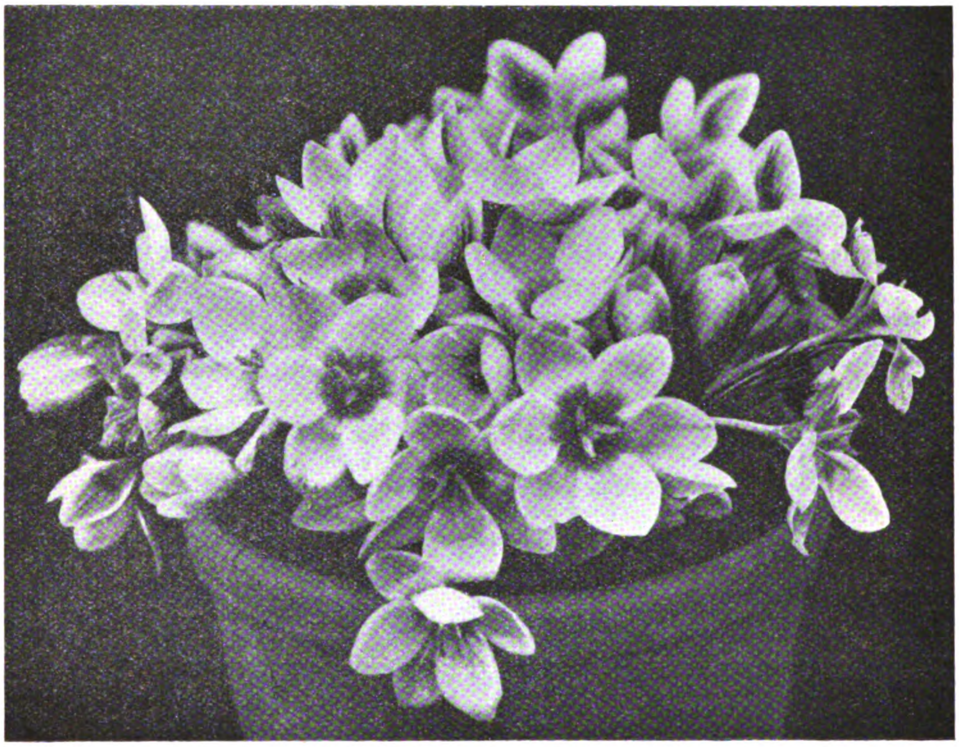


FIG. 41.—CROCUS CHRYSANTHUS VAR. BULLFINCH: R.H.S. AWARD OF MERIT, FEBRUARY 12 (SEE P. 97).

POINSETTIAS.

The beautiful scarlet-flowered Euphorbia pulcherrima, which is better known in gardens as Poinsettia, should be cut down after flowering and kept on the dry side. Fresh shoots will develop and these should be used as cuttings, inserting the latter about the end of April or beginning of May. The cuttings should be taken off with a little heel of the old wood, and they should be made about three or four inches long: dip their ends in sand or finely powered charcoal to prevent bleeding. They should be inserted round the edge of a four-inch pot, four in each receptacle, and placed in a propagating pit provided with bottom heat, to encourage quick rooting. Before they have rooted every means should be taken to prevent them from flagging.

When rooted and ready for re-potting they should be placed singly in 3½-inch pots, and from them later into 5-inch pots, using for the final potting receptacles eight inches in diameter.

Up to the final potting a little stronger soil should be used at each potting, and for the final potting the following mixture is suitable: three-parts good loam, to half-a-part each of leaf-mould and horse manure, adding sand or lime rubble, and a 5-inch pot full of bone flour and soot to each small barrow load of soil.

Old plants should be shaken out and repotted in 5-inch pots about the middle of June: they will be ready for their final potting at the same time as the young stock. All will be ready for their final potting about the middle of July. During the rest of the summer they should be grown in a cold frame, care being necessary in airing the frame, and shading the plants from bright sun. At a later stage air should be admitted freely to keep the plants sturdy in growth.

Poinsettias should be introduced to the glass houses after the middle of September, and the roots should be stimulated with liquid manure, made from cow or sheep dung. During the three or four weeks when the bracts are developing a temperature of 60° should be maintained in the house, and the roots fed weekly with a soluble fertiliser.

After the bracts have fully developed a lower temperature should be maintained. If the inflorescences are needed for cutting, the stems should be cut the required length, and dipped in boiling water, or the cut surface seared on a hot piece of iron to prevent bleeding, for if this is not done the heads will droop very quickly. To obtain good bracts the plants should only be grown for two years, allowing two inflorescences to remain on the second-year plants; good bracts may sometimes be obtained from three-year old plants if required to make up the number. *W. T. M.*

PRINCIPLES OF NOMENCLATURE.*

(*Concluded from p.* 93).

(3) Application of Names.

In the early days of Taxonomy a name was applied to a concept rather than to an entity. Everything that agreed with a generic diagnosis went into the genus, and the generic name was based on all the known species. Consequently when a genus was divided into two or more genera, there was often a difference of opinion as to which of these should bear the generic name. The only certain method af applying names is by means of *types*. Under the type-method, when an author publishes a new genus he mentions a *type-species*, to which the generic name is permanently attached, either as an accepted name or as a synonym. If the genus is divided into two or more genera, the one which includes the type-species retains the original generic name. The type-species is selected by the author as a standard. All species that are congeneric with it go into the genus. All others are excluded. In the same way, each species has a *type-specimen* to which the specific name is permanently attached.

Many botanists, however, adhere to the so-called "method of residue," which is really not a method at all, but a policy of drift. They apply a generic name to whatever is left of the original genus after removal of all the species that have been placed in other genera.

The operation of the two methods may be studied in the genus Banisteria L. (*Sp. Pl.* 427). This originally included seven species belonging to four different genera, now known respectively as Heteropteris (2 species), Stigmaphyllon (3), Hiptage (1), and Gouania (1). The Gouania was removed from Banisteria in 1763, the Hiptage in 1791, Heteropteris in 1822, and Stigmaphyllon in 1832, leaving nothing at all of the original Banisteria. But in the meantime a number of species belonging to a fifth genus had been placed in Banisteria, because they agreed with the generic diagnosis, and the name Banisteria was kept for this alien element, after all the original elements of Banisteria had been removed. Under the type-method Banisteria is retained for the genus commonly known as Heteropteris. Linnaeus adopted Banisteria from Houstoun, and Houstoun's plant was Heteropteris brachiata. In other cases the method of residue results in all the characteristic elements being removed from the genus, which finally consists of a collection of imperfectly known species.

The type species of a genus must be one of the species included in it at the time of publication of the genus. If there was only one species originally, then that is the type. If there were more than one, the type is fixed according to the following considerations:—If, in the original place of publication of a genus, the author stated that a certain species was the type, it is accepted as such, regardless of other considerations. If no type was specified, it should be selected from those species which agree best with the generic diagnosis. The generic name itself may indicate the type-species. Thus Xylophragma was based on two species, X. pratense and X. myrianthum, no type being mentioned. As the generic name, however, was derived from the nature of the fruit, which is known only in X. pratense, that species is obviously the type. Similarly the specific name may indicate the type:—Chelone Pentstemon, L. is the type of the genus Pentstemon. The type-species should, wherever possible, be so selected as to preserve the generic name in its generally accepted usage.

(4) Conserved Names and Substitute-types.

In certain cases the strict application of the International Rules—or, indeed, of any set of rules—would lead to highly undesirable changes in nomenclature. This was recognised by the International Botanical Congresses at Vienna (1905) and Brussels (1910), and over 450 well-known generic names of Phanerogams, which would otherwise have had to be abandoned, were specially conserved. An alphabetical list of these is given in *Kew Bulletin*, 1921, No. 9, pp. 321–326. Numerous Cryptogamic generic names were also conserved. Additions to the list of conserved names may be made by future International Congresses. Everyone will agree that such a name as Combretum, which has been used continuously since 1758 for a genus now containing several hundred species, should be retained, in spite of the fact (made known in 1923) that the earliest name for the genus is Grislea L. (1753). On the other hand, it seems hardly worth while to suspend the operation of the Rules in order to retain the generic name Brya which comprises only three species. Each case should be judged on its own merits, and no name should be added to the list without adequate discussion.

Acceptance of the type-method will necessitate the recognition of *substitute type-species* for certain genera. It is generally admitted that Calluna vulgaris is the type species of Erica, L., but in order to avoid changing the names of over five-hundred species of Erica, E. Tetralix, L. may be accepted as a substitute type.

(5). Loyal Observance of the Rules.

It is of the greatest importance that botanists who recognise the International Rules should adhere loyally to them in all cases. If a particular rule seems to have undesirable consequences, the case for its repeal should be stated clearly and forcibly, and the matter should be left for decision to the next International Congress. The more eminent systematic botanists scrupulously observe the Rules. It is only a few among the minor systematists who deliberately break individual rules which they do not like, and thus retard the progress of the science which they profess to serve.

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* An address given before the Mycological Society by Mr. T. A. Sprague, The Herbarium, Kew.

NEW HYBRID ORCHIDS.

(*Continued from January* 26, *p.* 47.)

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Dolphin	C. Luddemanniana × B.-C. Thorntonii	Stuart Low.
Brasso-Cattleya Perfecta	B.-C. Digbyano-Mossiae × C. Maggie Raphael	Stuart Low.
Brasso-Laelia Wengen	B.-C. Digbyano-purpurata × L. Latona	Stuart Low.
Brasso-Laelio-Cattleya Crescent	B.-C. Digbyano-Schröderae × L.-C. Ceres	Stuart Low.
Brasso-Laelio-Cattleya Elaine	B.-L. Jessopii × C. Dowiana aurea	Stuart Low.
Brasso-Laelio-Cattleya Evadne	L.-C. Martinettii × B.-L. Digbyano-purpurata	Stuart Low.
Brasso-Laelio-Cattleya Medea	B.-L.-C. Veitchii × L.-C. Dominiana	Stuart Low.
Brasso-Laelio-Cattleya Miranda	B.-L. Helen × C. Luddemanniana	Stuart Low.
Cattleya Astromary	Astron × Queen Mary	Armstrong & Brown.
Cattleya Charlotte Netherway	Bertii × Trianae	F. J. Hanbury, Esq.
Cattleya Doreen	General Pau × Maggie Raphael	Stuart Low.
Cattleya Fraser	Octave Doin × Carmen	Stuart Low.
Cattleya Minaret	Luddemanniana × Fabia	Stuart Low.
Cattleya Model	chocoensis × Suzanne Hye de Crom	Sanders.
Cattleya Mount Royal	Maggie Raphael × Enid	Stuart Low.
Cattleya Pauline	Lord Rothschild × Dupreana	Stuart Low.
Cymbidium Ivory Wings	Gottianum × Woodhamsianum	Armstrong & Brown.
Cypripedium Anne	Olbia × Hera Euryades	F. J. Hanbury, Esq.
Cypripedium Brunton	Jas. O'Brien × Mrs. Mostyn	F. J. Hanbury, Esq.
Cypripedium Frederick William Sander	Carola × Nirvana	Sanders.
Cypripedium Green Mantle	Aeson giganteum × Beryl ampliatum	J. Crombleholme, Esq.
Cypripedium Hancar	Hanburyanum × Caroia	F. J. Hanbury, Esq.
Cypripedium Hoodie	J. Howes × Leeanum	F. J. Hanbury, Esq.
Cypripedium Irma	Hera × Robsonii	F. J. Hanbury, Esq.
Cypripedium Jaffa	Memoria Jerninghamiae × Leeanum	F. J. Hanbury, Esq.
Cypripedium Mary Guthrie Waller	Zeno × Actaeus	F. J. Hanbury, Esq.
Cypripedium Mentor	Leeanum × Leander	F. J. Hanbury, Esq.
Cypripedium Michael	Blanche Moore × Zeno	F. J. Hanbury, Esq.
Cypripedium Pilatus	Hera × Curtmannii	Stuart Low.
Cypripedium Prince George	Camorin × Alcibiades	S. Gratrix, Esq.
Cypripedium Purple Splendour	Thompsonii × rubescens Ranjitsinhji	F. J. Hanbury, Esq.
Cypripedium The President	Gladiator × Eurybiades	Mrs. Gratrix.
Cypripedium Tripos	Swinburnei × Thompsonii	F. J. Hanbury, Esq.
Cypripedium Ursula	Zeno × Miss Andry Locke	F. J. Hanbury, Esq.
Laelio-Cattleya Beacon	Luminosa × G. S. Ball	Stuart Low.
Laelio-Cattleya Cavalese	C. Fabia × L.-C. Lustre	Stuart Low.
Laelio-Cattleya Delise	Luminosa × Aphrodite	Stuart Low.
Laelio-Cattleya Ian	C. Octave Doin × L.-C. Flammea	Stuart Low.
Laelio-Cattleya Kobe	C. Mendelii × L.-C. Tenera	Stuart Low.
Laelio-Cattleya Pioneer	L.-C. Schulzeana × C. Trianae	Stuart Low.
Laelio-Cattleya Pordoi	C. Fabia × L.-C. Dr. R. Schiffmann	Stuart Low.
Laelio-Cattleya Riva	L.-C. eximia × C. labiata	Stuart Low.
Laelio-Cattleya Russet	Luminosa × Coronis	Stuart Low.
Laelio-Cattleya Scythia	L.-C. Lucasiana × Mendelii	Stuart Low.
Odontioda Ching	Odm. tigrinum × Oda. Charlesworthii	J. J. Bolton, Esq.
Odontioda Columbia	Oda. Alcantara × Odm. St. James	Charlesworth.
Odontioda Hardyana	Unrecorded	Fred Hardy, Esq.
Odontioda Redbreast	Odm. Amethyst × Oda. Charlesworthii	F. J. Hanbury, Esq.
Odontoglossum Margarita	eximium × Doreen	Cowan.
Sophro-Laelio-Cattleya Rosemary	L.-C. Luminosa × S.-C. Blackii	Stuart Low.

POTASH, POTATOS AND VINES.

In a lecture given last autumn before the Bath Gardeners' Society the importance of wood-ash for the successful production of the Potato crop was emphasized. It was pointed out by a member that wood-ash differed considerably in its potassic content, and that in some districts the yield of potash is not a large one, because the soil in which the wood is grown is deficient in that element. I believe the behaviour of the Potato is a very good index as to whether the soil has sufficient potash or is deficient that element.

In the lower levels about and near Bath much of the soil is very light, resting on gravel, and I have never been able to grow a good Potato here in the ordinary way. As for producing seed sets fit to plant, it is out of the question, although the tubers may look remarkably good. A short distance away, where the soil is heavier, the produce is excellent, and although there is a deep-seated belief that good seed sets can only be produced in Scotland, I am almost convinced this is a fallacy.

If my memory serves me right, I read in Thompson's *Gardeners' Assistant* many years ago that the old Ashleaf Kidney was raised at Batheaston (which is less than two miles away) in 1806. This variety was grown by me successfully not more than thirty miles from here, in the same border for fifteen successive years without change of seed, and the oldest inhabitant had never seen that border without a crop of the same variety. The memory of its good qualities is still with me; the tubers were good before they were half grown. This border was used so long for the same crop because the ordinary soil of the garden was too heavy for Potatos excepting the old Scotch Champion, which succeeded admirably and made haulm seven feet in length and destroyed all weeds in its way.

I believe that if we could get rid of the idea that a change of seed is necessary, there are districts near us which would, if proper treatment was pursued, produce as good seed Potatos as can be found anywhere, but we must have a medium loamy soil and ample potash. There are great advantages in home-saved seed, if it is good, one of which is that the tubers may be placed in boxes in the autumn to get them properly sprouted.

At the garden alluded to, I never found that the addition of artificial or concentrated potash had any marked effect, whereas in this neighbourhood the results are very evident, especially on Tomatos, which colour well, while the flavour is altogether superior and there is not too much acidity.

When I first came to Bath I raised some vines from eyes, part of which were planted in a well-prepared border made up of good turfy loam mixed with old mortar and a liberal supply of bone meal and wood ash, while others were grown in pots. They made fine canes with short internodes and good leaves, but when beginning to ripen they behaved in a peculiar manner. The behaviour of the pot plants first attracted my attention, but very soon those in the border were effected in the same way. On a hot day the leaf stalks instead of standing at an acute angle to the main stem, would turn back one or two inches, though the leaves remained rigid. They partially or wholly regained the proper position during the night. The pot Vines had now fairly filled the pots with roots, and the small quantity of soil was partly exhausted. Liquid manure was applied—cow urine—with the result that in less than twelve hours the leaf stalks had regained their normal position. But they failed again at intervals during the following fortnight. Watering with liquid manure was continued and the leaf stalks regained their proper position and retained it.

But the plants in the border seemed to raise a different question. So far as I knew they had been provided for in the best possible manner, and the ample quantity of soil placed there less than twelve months before had not become exhausted. However, they were treated in the same way as the pot plants and with the same results. Fortunately, the behaviour of these Vines was rightly interpreted in time to prevent any serious misfortune. They finished off very well, Gros Colman, with its long fleshy leaves suffering most.

Urine from cows, we are told, is rich in potash, but even this must vary considerably according to the amount of this element contained in the soil which provides food for the animals. I took care that there was no shortage of potash after this, for it often happens that the difference between fertility and sterility is simply due to a deficient supply of one essential element which a person with a rudimentary knowledge of chemistry should be able to discover. When the missing link is found and added there is a magical transformation, as I had already experienced in connection with a soil deficient in lime.

Now comes the question. In what way does potash act? The text books tell us that "starch is not generated unless potash is present." That "an adequate supply of potash in the soil is essential to the full assimilation of carbon." That "value of potash for increasing certain crops, particularly Potatos is beyond dispute." That "the growth of plants is checked if potash is reduced beyond a certain limit." They also tell us that the greater portion of the potash excreted by animals is in the urine and that the urine from cows is the richest of all in potash. Thus we see the wisdom of making arrangements for collecting the urine and the folly of allowing valuable constituents to be washed out of manure by the rain. Much of what is called manure is only valuable because it provides material for decomposition.

Kainit contains potash to the extent of about 13%, but it also contains a large proportion of common salt, which is not good for producing floury Potatos. I think it best to use a more refined article, such as sulphate of potash, for this vegetable. I am no chemist and cannot claim to be correct in the above matters, but I am troubled with an enquiring mind and shall be grateful for information from those able to give it. Possibly there are others of your readers who have not yet learned all about the subject. *William Taylor, Bath.*

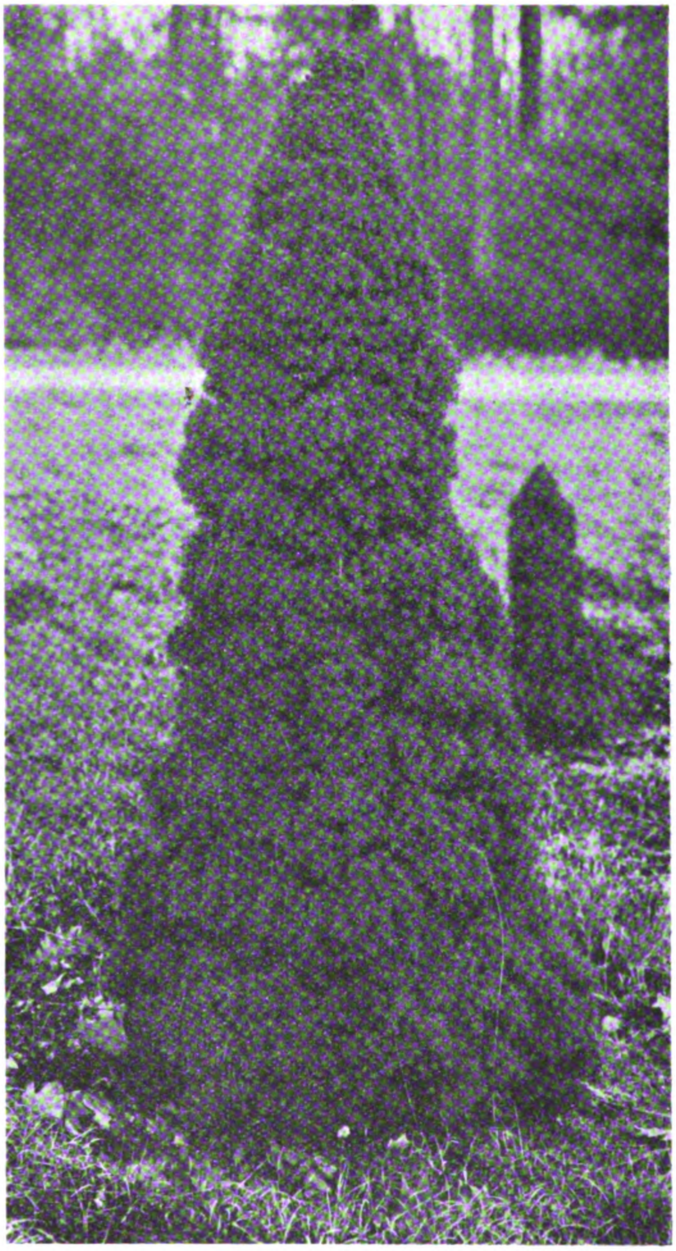

FIG. 42.—PICEA GLAUCA VAR. CONICA (SEE P. 107).

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WILLIAM BAXTER, CURATOR OF THE OXFORD BOTANIC GARDENS, AND HIS CORRESPONDENCE.

IN the *Gardeners' Chronicle* for 1871, p. 1426, there is a notice of this very painstaking and excellent horticulturist and botanist, and in *The Flora of Berkshire*, p. clxiv, 1897, I gave a brief biographical notice of him, which treated of his services to local botany.

In 1825 he issued *Stirpes Cryptogamicae Oxonienses*, which were fasciculi of carefully prepared dried specimens, many of them being leaf-fungi, of which group he was an industrious student, and a second set appeared in 1828. His chief work was *British Phaenogamous Botany* in which a plant representing each British genus was well drawn and coloured by hand under his superintendence, a good description accompanying each plate. The work, begun in 1834, was completed in six volumes. The copper-plates, which were recently in the possession of Messrs. Parker, were sold for melting up during the great war. Baxter's MSS., many of his books, including his special copy of *Phaenogamous Botany* and a presentation copy of Loudon's *Arboretum et Fruticetum*, and some of his correspondence came into my possession. Some of the letters contain matter that may be worth putting on record (Paxton's, as will be seen, refer to the foundation of the *Gardeners' Chronicle*), therefore extracts from them are given below:—

JOSEPH SABINE.

Joseph Sabine (1770-1837) was Secretary of the Horticultural Society. In a letter dated September 11, 1816, from Edward Street, Cavendish Square, he asks for a packet of cuttings from "the variety of Dog Rose in Marston Lane hedge, with double leaves; as it is the only plant, I think, we had better try to strike it with cuttings, and not to move the original plant this winter. The cuttings should be put up moist, and do not take off their leaves." This is alluded to by Baxter in Walker's *Flora of Oxfordshire*, 141, 1833, as "a remarkable variety in Marston Lane, near Oxford, with doubly compound leaves." Mr. Sabine on October 2 acknowledged receipt of cuttings, and asks him not to remove the original plant, but to send him a sucker of it. He names specimens sent by Baxter as "surculosa, woods from Rugby. No. 6 is micrantha. No. 7 is the variety of tomentosa from Marston Lane hedge and in the angle of the border in the Botanic Garden. No. 8 is the same as the hoary tomentosa from the field side near Marston Lane."

On October 17, 1816, he suggests that this is the best time for removing certain plants from Oxford; they should be sent by coach on Monday, so that he may receive them in time to send them to his house in Hertfordshire by carrier on Thursday. He wants "the three Paeonies. 1, being the blush one; 2, the pale leaved one; 3, the taller officinalis," as he is to make up collections of Paeonies for several gardens, viz., "Sir Joseph Banks, Kew; Sir J. Smith's, and others, and will be glad to have as much of the first, as the Professor can spare, and a good quantity of the two last of which you have abundance." If you have found a sucker of the variety of Rosa canina I shall be glad of it, and also of plants of the hoary tomentosa, and of the other tomentosa we found in Marston Lane, which also grows at the angle of the Plantation on the Garden. I should also be glad to have a plant of your Rosa cinnamomea and the Rosa glauca which Dr. Williams pointed out to me. I also wish for plants of Veronica hybrida, Cucubalus baccifer, Pisum maritimum, and the purple spotted flowered Lily. I shall be at my house in Hertfordshire next week and will then get together all the British Roses I can for your garden. The following seeds you said you could save for me: Campanula pentagonica, Tropaeolum minus, Silene tripartita, Antirrhinum speciosum, Atriplex hortensis, Campanula patula, white and blue. I will send some of the species of Paeonies, either with the Roses or afterwards." Baxter notes he sent off all his wants on October 20. Baxter, in *Walker's Flora*, l.c., says "Mr. Sabine found a Rose between the north end of Marston Lane and Headington Copse, which is larger than the common tomentosa with the more pointed leaflets, more glandular and less downy, which Mr. Sabine named R. tomentosa oxoniensis."

On March 19, 1817, Sabine writes that he is glad that the proposal for Mr. Baxter to become a corresponding member of the Horticultural Society is pleasing to him. He also, with the approval of Prof. Williams, proposed him for the Associateship of the Linnean Society "which is attended with no expense." The certificate was signed by Sir Christopher Pegge(?), Mr. Kent and Mr. Sabine. He again asks for cuttings of the clustered-leaved Rosa canina and reminds him to strike some cuttings of it.

On August 27, 1817, dated from Gloucester, he tells Baxter he hopes to call on him on his way to London, and on November 28, 1818, he thanks him for the double Cinnamon Rose which, though found in an apparant wild place, must be considered as the offspring of a garden plant since none of that division of Roses is a native of Britain (Baxter records this as "R. cinnamomea flore pleno, several large plants at the bottom of the peat bog on Bullingdon Green near Oxford" in Purton's *Midland Flora*, App. 47, 1821). Sabine sent to Baxter, by coach, a packet of Crocus roots for the garden; he promised to send some Salices.

Under date of March 26, 1819, he asks for plants belonging to twenty-four different genera for the Horticultural Gardens, and on April 18, 1819, intimates that plants in flower which, either from their beauty or novelty, may be wished to be exhibited can be sent to the house in Regent Street on the day previous to the meeting of the Society.

On April 26, 1819, he acknowledged the safe arrival of plants for the Garden, and on July 31, 1819, asks for notes on the Pocock Fig growing at Oxford and for some of its fruit. (This tree is in the south canonry at Christchurch and covers the wall for twenty-five yards. See Gunther's *Oxford Gardens*, p. 207. There is a print by Storer issued in 1806, when its dimensions were said to be "*Altitudine arboris*, 21 *podes: ambitus trunci in parte superiori*, 3 *podes* 6 *unciae*." Its name is due from its being brought from the east by the Professor of Arabic, Edward Pococke, once chaplain at Aleppo.) On August 12, 1819, Sabine thanks Baxter for his communication respecting the Pocock Fig tree, and asks for an engraving of it.

March 6, 1820, he sends Baxter eight Paeonies (but a wrong selection was sent) and on March 10 he refers to this error and wishes to replace them.

On August 1, 1820, Sabine sent more plants for the garden, including Amaryllis undulata, aurea, and tubispatha, and on October 5, 1822, asks for Narcissi from Baxter, wild plants of N. Pseudo-Narcissus from Berkshire, tubaeflorus, lacerus, surpassa (*sic*), angustifolius, a variety of poeticus like angustifolius, orientalis and var. biflorus. Six tubers of the native Potato were sent on March 1, 1823, part of the produce of two small ones received the previous year from America; Rheum undulatum and nutans are asked for. On March 22, 1823, Sabine asks for Rosa tomentosa oxoniensis and the canina with numerous folioles from Marston Lane, and the canina with numerous aculis from the same hedge. He has lost those which he received from his own garden, now in the possession of a stranger. On December 2, 1823, he asked for two plants of any shrubs or trees for the Arboretum. Baxter sent him Atriplex portulacoides, six kinds of Cistus, Euphorbia Characias, Genista pilosa, Hyssopus, Polygonum frutescens, Rubus species, Ruscus polyphyllum and androgynus, Salvia pomifera and Salicornia arabica out of the 140 asked for. Sabine sent a request for Herbaceous Plants for the garden at Chiswick, on February 9, 1824, and Baxter sent him thirteen species. In March, 1825, he sent a request for Aster laxus and Veronica orientalis, "to replace those lost during the winter," and in the following May Sabine desired "all the species and varieties of Helianthemum and Cistus which can be spared for the Chiswick Garden with the names under which they are labelled, as the names are in great confusion." Later still, on October 30, 1832, Sabine wished Baxter to send him "Paeonia orientalis, blanda, rosea and a seedling, and a large root of the new Everlasting Pea." *G. Claridge Druce.*

(*To be concluded.*)

THE ROSE GARDEN.

THE BEST BEDDING RED ROSE.

IT is a pleasant surprise to note that Mr. G. M. Taylor has now, to some extent, appreciated the excellent qualities of Rose Etoile de Hollande.

I have before me the National Rose Society's *Annual* for 1921 in which Mr. Taylor stated in a criticism of the then new Roses: "I now come to a batch of red Roses, all of foreign origin, which I will deal with together. They are Etoile de Hollande, Hortulanus Budde. . . . Ten years ago every one of them would have been a welcome addition to our gardens; to-day they are not wanted. That, at least, is the conclusion I have arrived at after testing them."

At that time I deplored what, in my opinion, was a very hasty judgment appearing in the official publication of the National Rose Society, as in 1921 I formed a very high opinion of these two red bedding Roses, and since that time I have not found these two varieties in sufficient supply to meet the demand, and this season the demand for Etoile de Hollande has been unprecedented. These two Roses are still unknown and ungrown by many of the largest Rose growers.

Mr. Taylor places Colonel Oswald Fitzgerald first, but with every respect for his judgment, I cannot conceive of a red Rose occupying the premier position that lacks the perfume so expected of Roses of this class. One can easily forgive the rich orange of Emma Wright, the brilliant apricot-orange of Mrs Redford and the subtle cerise of Lady Inchiquin for not also bringing to us anything approaching a full Rose perfume, but how difficult it is to overlook this in Colonel Oswald Fitzgerald, Covent Garden, W. C. Gaunt, Red Letter Day, and K. of K.

Colonel Oswald Fitzgerald is far from being a robust grower, and as a cut back must be very well grown to produce good, stout, flowering shoots.

Etoile de Hollande is not an ideal garden Rose, which can only be obtained by a blending of the good points of General McArthur Hadley, and Colonel Oswald Fitzgerald—General McArthur for its free-flowering qualities and perfume; Hadley for its ideal stem, length, and substance of petal; Colonel Oswald Fitzgerald for its non-fading colour and delicately reflexed petal. Etoile de Hollande, the progeny of Hadley and General McArthur, is the nearest approach to this ideal at present.

Hortulanus Budde is a delightfully fragrant and free blooming variety of a brilliant scarlet colour. The shade is most effective and lasting. Its chief fault is lack of fulness, but even this is counteracted by the disclosure of a pleasant centre of bright yellow stamens of considerable length which adds to its beauty in the full and over-blown stage. I can confidently bring it to Mr. Taylor's notice again as "the next best thing" to Etoile de Hollande. It attracted considerable notice on the few occasions it was well shown last season. *W. H. W.*

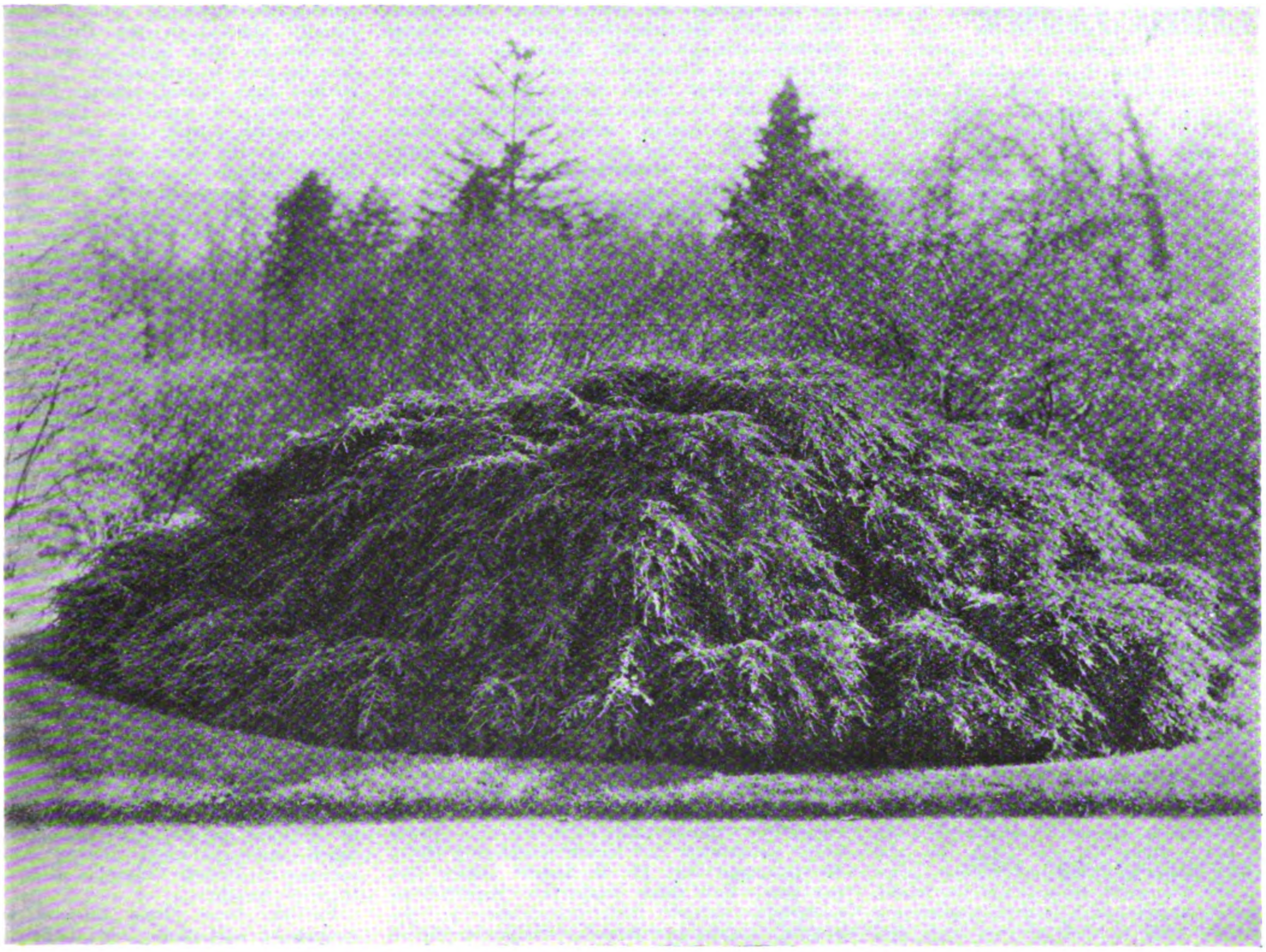

FIG. 43.—TSUGA CANADENSIS VAR. PENDULA IN PROF. SARGENT'S GARDEN AT BROOKLINE, MASS., U.S.A.

PLANTS NEW OR NOTEWORTHY.

THE SARGENT HEMLOCK.

One of the most graceful of pendulous Conifers is Tsuga canandensis var. pendula,* commonly known as Sargent's Hemlock. It is flat-topped with spreading branches and drooping branchlets and forms a low, broad mound of remarkable beauty. This variety was discovered near the summit of Fishkill Mountain, near Beacon City, on the Hudson River, New York, by General Joseph Howland about 1870. Four plants were found. The discoverer grew one in his own garden at Matteawan, New York, gave the second to his friend and neighbour, Mr. Henry Winthop Sargent of Fishkill, the third to Mr. H. H. Hunnewell of Wellesley, Massachusetts, and the fourth to Professor C. S. Sargent of Brookline, Massachusetts (Fig. 43). Other than these four specimens, only the first and fourth of which are now living, the plants in cultivation are grafts which vary in habit and appearance. They grow more strongly, are inclined to form an erect stem, and are looser and more tufted in habit, and, to some extent, have lost the dense character which is the peculiar charm of the seedlings. The illustration is of the original plant growing in Professor Sargent's garden. It is an almost round mass only six feet high and twenty-three feet through, with a circumference of seventy feet. This plant is in perfect health and, as the illustration shows, is a most magnificent specimen.

PICEA GLAUCA VAR. CONICA.*

Dwarf Conifers have a decided place in gardens, indeed, some of them like the Mugho Pine and low-growing Junipers are almost indispensable. These slow-growing diminutive plants belong to many genera. In the genus Picea, none is so prolific in these forms as the Norway Spruce (Picea Abies), and some of them are among the finest of their class our gardens possess. But to my mind the most delightful of dwarf Spruces and an attractive plant of singular charm is a form of the common White Spruce (Picea glauca), which has been named var. conica, but, unfortunately, has been distributed under the erroneous name of Picea albertiana.* It is of narrow-conical habit, very dense, with short, close-set, twiggy branches, which are thickly clothed with radially spreading, thin, slender, leaves, each from one-third to half an inch long. In winter the leaves are a light glaucous green, but in summer they are grass green, almost pellucid, and of singular delicacy. In general appearance the plant much resembles the Summer Cypress (Kochia scoparia). How tall it will grow we do not know; the finest plants in cultivation are those in the Bayard Thayer Arboretum, South Lancaster, Massachusetts, which are nearly five feet high (Fig. 42). It is essentially an Alpine plant and its successful cultivation requires a moist situation with protection from strong winds. It roots readily from cuttings, but grows very slowly, and is a very valuable little dwarf for the formal garden.

The history of this plant is simple, though attempts to make it involved have been made. In 1904, Mr. J. G. Jack collected at Banff, Alberta, some seedling plants of what he thought was the variety albertiana, the western form of the White Spruce. He sent these seedlings to the Arnold Aboretum where they developed into the lovely plants above described. *E. H. Wilson, Arnold Aboretum.*

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*Beissner in Jaeger & Beissner, *Ziergeholze*, ed. 2, 445 (1884).

* Rehder in *Jour. Arnold Arb.* I. 192 (1920).

* See *Gard. Chron.*, May 7, 1921, fig. 97, p. 223.

IMPERIAL FORESTRY CONFERENCE.

CONDITIONS WEST OF THE ROCKIES.

(Concluded from p. 11.)

When the prairie districts have been left behind the first evidence of tree growth on a large scale occurs in the Rocky Mountains. The forests in these mountains are not, however, particularly impressive, consisting chiefly of Engelmann Spruce and Lodge Pole Pine, mixed with which, on the western slopes, are Douglas Fir, Western Hemlock, Abies lasiocarpa, and one or two other species of little importance. The small timber seen throughout these districts is chiefly due to forest fires, which have left very little of the original growth intact. At no time is it probable, however, that the forests produced very large timber, owing to the low rainfall and high altitude of the greater part of the range, but it is evident that the effect of fires has been to increase the proportion of Pine to that of Spruce or Douglas Fir, and a long interval must elapse before the original conditions can be restored as regards the composition of the forests or the size of individual trees.

When the Columbia River has been crossed, the Selkirk range, running more or less parallel to the Rockies, presents a much more interesting type of forest, owing to the increase in rainfall and the greater number of species. Thuia plicata, Pinus monticola, and Larix occidentalis, are the most important species to be added to those already mentioned, but the increase in density and size attained by the timber present a much more attractive picture. One or two western, broad-leaved species also begin to show themselves, amongst which are Betula occidentalis and Populus trichocarpa.

Between the Selkirks and the coast range lies the strip of steppe-like country known as the "Dry Belt," in which Western Yellow Pine (P. ponderosa) is the predominant tree, forming open forests more or less park-like in appearance. The Yellow Pine is used extensively for milling purposes, but its reproduction is greatly interfered with by fire, while the grazier is always competing with the forester for possession of the land. Fortunately this species is a good seed producer, and so long as sufficient seed-producing trees are left the final extermination of this species can be prevented, but in common with most other indigenous forests overcutting appears to be more or less universal.

The most interesting portion of British Columbia, so far as tree growth is concerned, lies on the Coast Range, together with Vancouver Island, Queen Charlotte Islands, etc. It is in these districts that the real big timber grows, and the marvellous crops produced are renowned throughout the world. The heaviest stands and largest timber are found within 3,000 feet of the sea level and usually in districts with 50 to 60 inches of rainfall, but there is no clear proof that rainfall and growth are closely correlated. The summer temperatures along the coast closely resemble those in the British Isles, ranging from 55° to 65° F. for July and August, according to altitude and latitude. The tree limit throughout Western Canada appears to vary with the distance from the coast. In the Rocky Mountains tree growth ceases at from seven to eight thousand feet above sea level; while in Vancouver Island growth becomes dwarfed and alpine in character at about three to four thousand feet.

Species found near the coast and on the islands include several trees which do not occur further inland, while on the other hand several inland species do not reach the coast. Abies grandis, Abies amabilis and Sitka Spruce are typical coast trees, while the Western Larch and Engelmann Spruce do not extend further west than the Selkirk range. Abies lasicarpa, Lodge Pole Pine, Douglas Fir, Western Hemlock, Thuia plicata, Pinus monticola, etc., extend right across the 2,000 miles of country, west of Alberta, although the altitude affects their distribution in individual districts. These differences in habitat cannot always be traced to rainfall variations, although winter temperatures may account for some of them. Within 1,000 ft. of sea level, Douglas Fir, Abies grandis, Thuia and Western Hemlock, with an undergrowth, in which Acer macrophyllum figures largely, form the bulk of the crop, while Populus trichocarpa occurs in river valleys and alluvial flats. At higher altitudes Abies amabilis becomes more plentiful, while near the tree limit Abies lasiocarpa, Cupressus nootkatensis and Tsuga Mertensiana occur. The grouping of species appears to depend very much on accident. Cedar swamps or groups of Thuia plicata occur practically in hollows and wet flats, undergrowth being entirely absent, with the exception of fringes of Fatsia horrida (known as the Devil's Club) along the water courses, forming impenetrable thickets through which locomotion becomes impossible. These swamps or flats, are usually littered with the stems of past generations, forming a network of interlaced logs which remain more or less sound for centuries. Wherever an opening occurs in the canopy, Hemlock springs up on the surface of the logs and will survive for years without coming in contact with the ground. Douglas Fir usually occurs as more or less even-aged crops, with an undergrowth of Hemlock, with, occasionally, Abies grandis or Pinus monticola, these two species appearing to grow where they can, and forming no definite component of the forest crop. After fires, Douglas Fir is the first to appear, and frequently forms dense crops with little or no mixture of other species, Hemlock only coming in after the surface opens up in course of time.

On Vancouver Island one or two interesting species are found which do not occur on the mainland. Of these the most striking is Arbutus Menziesii, which occurs in groups on rocky sites, and provides a pleasing contrast to the dark green of the Conifers with its orange bark. Rhamnus purshiana, Cornus Nuttalii, Acer circinatum, etc., also occur throughout the southern part of the Island, where also Quercus Garryana forms a small tree with the habit of the common British Oak.

The general features of the western forests are the astonishing density of the natural crops, the height and size of individual trees, and the scarcity or subordinate position of broad-leaved species. As regards density, the valume of timber per acre is probably the best proof. In European forests crops of Silver Fir, Beech or Spruce may sometimes be found measuring from 10 thousand to 12 thousand cubic feet per acre, but these crops are regarded as exceptions rather than otherwise. In the coastal forests in British Columbia, small groups will sometimes measure up to 50,000 cubic feet in the case of Thuia or Douglas Fir, and 30,000 cubic feet per acre is by no means uncommon for fairly wide areas. These figures may appear almost impossible to an English forester, but it must be remembered that individual trees often contain from 1,000 to 2,000 cubic feet without having had any particular advantage as regards space. Groups of eight or ten trees may often be seen, each containing 1,500 to 2,000 feet, and standing sufficiently close to appear as a solid volume of wood when viewed at a distance of from fifty to sixty yards. Professional "cruisers" or valuers often estimate the yield per acre of fair-sized blocks at 25 or 30 thousand feet board measure which, whether a divisor of 5 or 8 be adopted for conversion into cubic feet, gives an extraordinary yield of convertible timber.

Individual trees are equally interesting, the largest Thuia in Stanmey Park, Vancouver, standing within 200 or 300 yards of the Atlantic Ocean, measuring fifty-two feet in circumference at breast height. While this is a large tree, it is probable that numbers equally large could be found before the forests were cut out or otherwise destroyed along the west coast. Sitka Spruce also grows to an astonishing size in individual cases, trees ten or twelve feet in diameter at breast height being recorded. As regards height, it is more difficult to get exact figures, as it is only occasionally that a clear view can be obtained of a standing tree, while the tops of felled trees are usually broken in falling. There is no doubt, however, that heights of 250 feet to 300 feet in Douglas Fir and Thuia are quite common, and with these heights it is often possible to obtain 200 feet of clear timber.

An explanation of the large size of trees and density of crops along the Pacific Coast is difficult to find. Nothing in the soil of British Columbia, which consists largely of glacial sands and gravels, very similar to those on which Scots Pine is usually planted in the British Isles, will account for the facts. Growth, so far as can be seen is not rapid, and it is very seldom that annual shoots of Douglas Fir or Thuia are equal to those common in this country during the first thirty or forty years in the lives of these trees. The feature which is chiefly responsible is the long continued growth in height and diameter, but to what this continuance is due no one can definitely say. As showing the divergence of views on this subject, three theories may be quoted which are frequently advocated by various individuals. One of these is the heavy winter rainfall which prevails along this coast, but bearing in mind the fact that similar rainfalls occur in many parts, not only of America, but throughout the temperate zones, this fact in itself cannot be of much importance. The porous nature of the soils renders the likelihood very remote of winter rainfall playing any great part in the development of the trees, although it may have some influence in the early months of the year, when temperatures begin to rise, by inducing a rapid spring growth, but as already pointed out, rapid growth is not a prominent feature. Another theory attributes the successful development of British Columbian Conifers to a dry summer with plenty of sunlight, and this climatic condition has been called into account for the general absence of broad-leaved trees in the western districts. The third theory brings in the humidity of the air, and the frequency of mist and cloud as providing favourable conditions for assimilation, but it is not quite certain that a study of the climatic conditions confirms this theory. While rain is frequent at certain points, an unclouded sky is much more common during the summer months in British Columbia than any other type of weather.

Putting these three theories together it cannot be said that they help very much in solving the problem. We cannot, of course, state that such species as Douglas Fir, Sitka Spruce, or Thuia plicata will not grow to the same size in Europe if given similar conditions. Their introduction does not date far enough back to prove or disprove this beyond all doubt. In the majority of cases, however, it is fairly evident that 200 feet will be the approximate maximum height attained by these species in any part of Northern Europe, and then only under very favourable conditions. This is very close to the heights attained by European trees, such as Spruce or Silver Fir, when favourably placed, and it would appear that climatic conditions are responsible for this limitation of height growth. One climatic factor in British Columbia is very striking. This is the comparative absence of wind during the growing season, even close to the coast line, and this may possibly account for the luxuriant growth, which is more apparent than real, on account of the great age of the virgin forests. *A. C. Forbes.*

NURSERY NOTES.

THE SUTTON PRIMULAS.

OUR annual trip to Reading to inspect the Primulas, for which Messrs. Sutton and Sons are famous, is invariably a pleasurable one and never lacking in interest. On the occasion of our visit a fortnight ago we found the Primulas somewhat past their best. The bright days of January proved ideal for pollination and full advantage was taken of them to secure the fertilisation of the flowers and, in due course, a crop of seeds. However, notwithstanding that loss of flowers which soon follows and generally indicates fertilisation, the many thousands of plants provided a dazzling display which was particularly cheering on the grey morning we chose for our visit.

On a sunny day in the early part of the year a visitor has a brighter outlook than on a dull one; at such time and occasion the sunshine is cheering and one is apt either to regard the Primulas as merely an incidental addition to the brightness of the day, or, perchance, with spirits raised by the sunshine, to accord them exaggerated admiration. But if the day be dull and grey, with a snow storm impending, the Primulas provide the colour which the sun fails to supply, and the colours found in his beams are here reproduced in blossoms.

The wisdom of sticking to a good thing and making the best of it is exemplified in the Sutton Primulas. About thirty years have passed since the writer first saw the Primulas at Reading. In those days a blue Primula was, at best, of a slaty-purplish hue, but as the late Mr. James Martin said "it was the nearest approach to blue in Primulas." The variety in question was Reading Blue, but the Reading Blue of then and now are as different as chalk is from cheese. Messrs. Sutton and Sons have real blue Primulas, light and dark, and the immense improvement in colour brought about in this shade alone by patience and skill extended over a quarter of a century is but an example of the splendid work of improvement carried on by the Reading firm in varieties of other colours. Certain readers will remember the old Chiswick Red Primula of other days. Compare this, then, with the Etna of to-day and the improvement in vivid colouring will be obvious. In white Primulas there has been a vast improvement in habit and in size, substance and purity of the flowers. Clear salmon shades were unknown not so very long ago but now there are exquisite varieties in this colour, and a new one recently evolved has rich salmon-cerise colouring and promises to supersede those already distributed. The beautiful Duchess Primula with its exquisite combination of colours, although not new, is a triumph of which the Reading firm has every reason to be proud.

Twenty-five years ago Messrs. Sutton and Sons were throwing away seedlings which failed to conform to the old florists' ideal of form and habit, but there came a day when someone saved a few of these "weedy and starry-flowered" outcasts, and so the Stellata group came into being and found favour in the eyes of those who preferred grace to correctness of form. With a swiftness almost incredible in plant breeding Messrs. Sutton and Sons evolved a race of Stellata Primulas of fine habit, wonderful freedom in flowering and with flowers of various colours approximating to those found in the larger-flowered types, until now the colours range through exquisite shades from the Eyeless White to the intense Ruby.

Yet another break soon followed and was obtained by crossing the "pure" Stellata forms with the larger florists' varieties, and thus, just as in the older popular type there are ordinary and giant sections, so now there are similar sectional groups of ordinary and Giant Star Primulas; one of these, named Giant Star White, possesses the grace of one parent with a good deal of the purity and substance of the other. It is indeed a very fine garden plant, but, unfortunately, not a prolific seed bearer.

Even from these few observations it will be gathered that the Sutton Primulas are sufficient to meet and satisfy all tastes in form, colour and habit. Fortunately, also, Primulas require only a small amount of artificial heat for their successful cultivation, indeed, they are plants which may be grown satisfactorily by anyone possessing a heated greenhouse and some frames. Moreover, few, if any, other plants provide a display over do long a period of the winter as do these Primulas. Messrs. Sutton and Sons' catalogue may be had for the asking, and as it contains descriptions and numerous illustrations of the whole series of Primulas, for which they are deservedly famous, there is no need for us to describe the varieties in detail.

A few words in praise of Primula calciphila must serve as conclusion. As grown in Mr. Leonard Sutton's private garden at Hillside, this species is particularly decorative, and as it shows a good deal of variation there is no doubt it will be used as the foundation on which to raise other, and perchance new races of greenhouse Primulas.

MARKET FRUIT GARDEN.

WINTER WASHES.

IT is the dream of every grower that some day may be discovered a winter wash capable of killing all the insect eggs present on the trees, and so obviating the need for spring and summer spraying against such pests as aphides, psylla, and many caterpillars. Last winter trials were made with some newly-introduced coal-tar washes, and on the strength of a few favourable reports a good many growers are relying on such washes this winter, hoping to escape spraying during the growing season. I am afraid they are likely to get a rude awakening. There is nothing new about these tar-oil washes. We had them before the war, and little was heard then about their egg-killing powers. Moreover they were tried and found wanting last year at the Long Ashton Research Station. It is true that two coal-tar derivitives of some promise were found, but two proprietary washes of this description proved unsatisfactory as killers of aphis eggs, though they are quite probably excellent winter washes in other respects. It is worthy of meation that in these trials the best egg-killing results were obtained from the use of lime-sulphur wash, provided that a calcium caseinate spreader was used with it. Lime-sulphur at strengths of 1 in 15, 1 in 20, and 1 in 30, with the spreader, reduced the hatch of eggs to less than one per cent., no matter whether applied in February or March. Lime-sulphur without the spreader allowed a comparatively high hatch of eggs, and was, therefore, unsatisfactory. This is interesting, as it shows the value of a calcium caseinate spreader with lime-sulphur even when used as a winter wash. It gives improved wetting qualities, in which lime-sulphur alone is weak. Several makers now sell calcium caseinate spreader, which is cheap and well-worth using with all fungicides and with arsenate of lead washes.

PLANTING BUSH FRUITS.

I am planting considerable areas with bush fruits this winter, chiefly to replace Black Currants grubbed on account of reversion. In future I shall have a more representative cropping of bush fruits. The best piece of land available has been planted with Gooseberries, the varieties being Careless and Whitesmith, six feet apart each way. A rather dry piece is ready for Red Currants, of the Red Dutch variety, which growers tell me is still as good as any for market work. The Black Currants awaiting planting are Boskoop Giant, which has done well here in the past, and French Black obtained from one of the well known Norfolk growers. I am going back to close planting of Black Currants as they seem to set better when close together, and the loss of bushes through reversion is less serious. They will be put three feet apart in the rows, the latter being six feet asunder. In order to reduce the outlay in bushes they will actually be planted six feet apart in the rows, but cuttings will be inserted between them, and left where they stand to form bushes. Close planting prevents cross-cultivation, but a good crop of Black Currants pays for hard work. The problem of reversion will be tackled much more seriously with this new stock of bushes Careful rogueing will be done every year, and the gaps filled with young bushes raised from cuttings taken only from bushes that are fruiting normally. *Market Grower.*

VEGETABLE GARDEN.

EARLY BEETS.

AN early crop of this most useful vegetable may be obtained by sowing the seeds in a house or frame having a temperature of 55° to 60°, in the first or second months of the year. The roots thus obtained are much more tender and sweeter than those of the old crop. The seeds should be sown thinly in shallow, well-drained boxes cotanining light, rich soil. Directly the seedlings appear they should be placed as near to the roof-glass as possible as the more sturdily they grow the better roots will they form. When one inch high the seedlings may be transplanted six inches apart in rows made one foot asunder in a frame over a hot-bed composed chiefly of leaves, as these provide a gentle lasting warmth. About six inches of rich, light soil should be placed on the top of the bed. The temperature of the latter should be 55° before transplanting is done. When planted, the seedlings should be well watered by means of a rose-can and the frame kept close for a few days. When the plants commence to grow they should be kept decidedly on the dry side and plenty of air admitted without exposing the crop to cold draughts. Great care and attention are required to maintain the necessary temperature but the plants should not be coddled, or they will become drawn and useless. Whenever frost is expected cover the lights with mats at night, taking care to remove them early the following morning. The best variety for frame culture is Improved Globe: this is a globular, Turnip-rooted, quick maturing variety of a deep red colour. *W. M.*

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

Young Lads and Horticulture.—The article and correspondence under this heading in recent issues of your valuable paper are very interesting, and my suggestion is that head gardeners should help young lads more than they do. Many lads to my knowledge have been almost scared out of the profession by the bullying ways of those in authority. I can speak for myself from experience. At one large establishment where I was inside journeyman, the conditions were almost unbearable. We were rushed here and there, never given a chance to do things so thoroughly as they should be done, whilst if we did a thing one way it was wrong, and if we did it the contrary way it was wrong also. Never was the gardener amiable, and seldom, if he found a member of his staff doing a job wrongly, would he point out the fault in a gentlemanly way, rather would he insist that the employee was no good and never would be. We were given no encouragement whatever, and the appearance of the gardener would send us anywhere out of the way of his criticisms. I stayed in this situation two years and then asked the gardener if he would try and procure me another situation, to which he replied "No, I can't," in a way hardly describable. He served us all alike, and two lads have now given up gardening as a result of this experience. I am not stating that all places are the same as the one I refer to. All this sort of thing is very disheartening and does not give would-be gardeners a chance to show their worth. I myself went to a smaller place in the hope of getting better treatment, and I am glad to say with success. I look back with dread to the past and say to myself, "Never again." *Inside Journeyman.*

—— I read with deep interest Mr. H. W. Stenning's letter on p. 53, and I agree with him when he states that there is no reason why young men should not be as eager to learn gardening to-day as they were twenty or fifty years ago; but I do say emphatically, from experience, that head gardeners do not encourage those under them, but constantly drum into them what they did when they were young men. The fact that there are not many lads eager to take up gardening as a profession is, I consider, due to this cause. Even if a lad were paid fairly well there is always uppermost in his mind the prospects for the future, and wages paid to gardeners on the whole do not show a very rosy prospect for a young gardener getting a home of his own. I also read with interest the letter by *Ambitious* in the issue of February 9. Those of us who have spent our time since leaving school in gaining a knowledge of our profession should take the deepest interest in our work, and so make for greater efficiency, which would, I think, where conscientious employers are concerned, raise the standard of wages. *One more ambitious.*

Lonicera tatarica.—In supplementing the information on this Honeysuckle given on p. 85, I may state that while seeds provide a ready means of increase, the best coloured forms can only be reproduced true from cuttings; among seedlings, however, there is always the chance of raising a plant better than the parent. Other deciduous bush Honeysuckles worthy of special attention include L. Maackii, a free growing bush 8 feet to 10 feet high and as much in diameter, with pure white flowers at first, changing with age to a cream shade. The first plants of this species were of Manchurian origin, but more recently Mr. Wilson has introduced a much superior form from China; L. Albertii, a shrub of spreading habit with rosy-lilac flowers, native of Turkestan; L. syringantha, a species from China and Thibet, with fragrant, lilac-coloured blossoms, freely borne on bushes of spreading growth; and L. thibetica, a dense bush of rounded habit with fragrant, lilac-coloured blossoms. *A. O.*

Streptocarpuses.—The Cape Primroses have been so greatly improved during late years that they are hardly recognisable with the old type of twenty years ago. A house full of giant hybrids, with flowers three inches or more across, and colours ranging through shades of pink, rose and crimson, to clear mauve and intense violet purple, invariably commands admiration. Cape Primroses are superseding the Gloxinias as indoor flowers. Plants in 6-inch pots with 30 to 40 spikes, each nine inches to a foot long, and with probably over a hundred blooms, are a joy to behold, and they are fine plants for home and conservatory decoration; a point in their favour is the long period of flowering. Seed sown in January or February in pans will provide good plants to flower in five-inch pots during July and August. The best results however are gained from the plants in the next season; after being wintered in a temperature of 40° to 50° and having enough water to keep them from shrivelling, they should be started in the spring and repotted in a compost of peat, leaf mould, dry cow dung, fibrous foam and sand, in equal parts. The results will be like those referred to. A temperature of 60° to 65° during growth suits them admirably; plenty of moisture and shade are essential to success. Stand the plants on inverted pots so as to permit of syringing amongst them, but not on the leaves as this is detrimental to growth. From the seedling stage onward care should be taken that the plants are not allowed to get dry as drought is fatal to success. The seed pans should be well drained, and the seed sown thinly and the seedlings transferred to small pots so soon as they can be easily handled. I heartily recommend those who have not given the Streptocarpuses a trial to include a packet in their seed order. We are quite satisfied with seed of Carter's Giant Hybrids. *W. A. Dunn, Brockwood Park Gardens.*

Spraying Failures.—Mr. A. J. Macself's notes on this subject on page 80 are full of interest, and it will be well if the advice given is accepted by gardeners throughout the length and breadth of the country. Taking the gardens of England as a whole very little spraying is applied to outdoor fruits, and it is difficult to assign a good reason for the neglect of a detail of culture which ought to be as much a matter of routine as pruning. When a pest makes its appearance in the greenhouse, spraying, usually with the aid of a syringe carrying a spraying nozzle, is done promptly and efficiently by all good gardeners, but when it comes to applying the same principles of procedure to their hardy fruits, they hesitate, and are lost—it is either not done or done so late that it ends in failure. A friend of mine, who is in charge of a large garden in the midlands, was most strongly opposed to spraying his orchard, notwithstanding that the trees suffered seriously from the ravages of Winter Moth year after year; three or four seasons ago he was persuaded to give arsenate of lead a trial. He set to work with that thoroughness in attention to every detail which has gained for him his present position and success, but in his inexperience of spraying he failed to procure quite enough materials for operations. Immediately the first grub was seen he sprayed all the trees with the exception of seven, for which there was no available arsenate of lead. That gardener will spray annually in future as certainly as he will prune, because the seven unsprayed trees were, in the summer, the spectacular failures of the garden. I have no faith whatever in general voluntary spraying by private gardeners, or even by commercial fruit growers. If it is essential, and the question is debatable, in isolated private gardens, it will have to be made compulsory and we shall want nearly as many inspectors as there are inhabitants in certain districts to see that it is done. I do not expect that spraying fruit will be either general or compulsory in my time. *W. T.*

Paeonia officinalis Seeds.—I was much interested in your note and illustration of a Paeony fruit in *Gard. Chron.*, p. 75. In my opinion it is P. corallina. I grew this Paeony forty years ago, but accidentally lost it and have not met with it since. It is the only British species and is, I believe, found wild in only one, or at the most two, very restricted areas, which perhaps had better be nameless. The bright coral flowers do not last long, but the black pearl-like seeds lying cosily in their downy bed are unique and effective for room decoration. I do not find any of the P. officinalis family to be very lavish of seeds; although I have grown that grand variety lobata for a number of years I have never found more than about a dozen seeds, and that was in the hot summer of three years ago; just a few of the capsules held one mature seed each, the remainder being dry and shrivelled up, apparently owing to lack of fertilisation. Have any of the double forms of P. officinallis been known to mature seeds in this or any other country? *F. Gifford.*

SOCIETIES.

HORTICULTURAL CLUB.

A dinner of the Horticultural Club was held on Tuesday, the 12th inst., at the Trocadero Restaurant, Piccadilly, and following the dinner a lecture was given by Dr. A. D. Imms, M.A., Chief Entomologist of the Experimental Station, Rothamsted, on "Certain insect Pests of Gardens." About thirty members were present, and the Chairman of Committee, Mr. Gerald Loder, occupied the chair.

Dr. Imms' remarks were very interesting and illustrated by a number of excellent lantern slides. He dealt first with Aphides and gave the life history of those troublesome pests, referring to the reproduction of the insects by parthenogenesis and by sexually produced eggs in the autumn. He described their methods of feeding, and showed illustrations of the manner in which the juices are sucked from the regions of the phloem. He stated that saliva was secreted by the insect along the passage made by the proboscis.

He next dealt with the Woolly Aphis, which, he said, was found all over the world. The sexual generations of this insect are rare; reproduction is mainly carried on by apterous females, although winged females are produced through the summer and autumn, but their destiny is not fully known. It has recently been found that Woolly Aphis passes part of its life history on the Elm and there produces sexual forms. The eggs are laid in the bark, the young are hatched in the spring and they attack the leaves of the Elm, which become curled. At that stage they fly back to the Apple. Dr. Imms said that it was not essential for the insect to pass part of its life cycle on the Elm and it had been found that where trees had been screened for ten years, the life cycle of the pest was continued. The serious nature of this Aphis was that it attacked the roots as well as the branches, and migration took place from the trunk to the roots in September to November and back again from the roots to the trunk early in May to the end of June and at irregular intervals afterwards. He strongly advised the application of grease bands to Apple trees, as large numbers of the pest were trapped on the bands whilst they were migrating from the trunks to the roots or *vice versa.* He considered that the best method of combating the pest was to raise immune varieties of Apple, and stated that Apples grafted on the Majetin and Northern Spy stocks were immune to Woolly Aphis, both in the roots and branches. There are other varieties that are not, or rarely known to be attacked, such as Jonathans, Irish Peach, Early Victoria, Duchess of Oldenburg, Duke of Devonshire, and Anne Elizabeth. The best method of control was by spraying with nicotine in August, using one ounce of nicotine of 96 per cent. purity and four ounces of soft soap in ten gallons of water.

Another important class of pest dealt with were the Capsid bugs, the green Apple Capsids, Plesiocoris rugicollis, and the less troublesome Orthotylus marginalis. The eggs of these pests are known to be laid in mid-June to mid-July under the bark of Apple twigs and the insects hatch towards the end of April. The young Capsid bugs creep in between the developing leaves and the flower buds and the older bugs attack the leaves and the fruit. The first signs of injury caused by them are small brown spots. This kills the tissue at that particular spot so that growth is not developed in the area punctured and the leaves therefore become deformed. The worst damage is done to the fruit, every one punctured having rough brown patches and pits; in extreme cases the fruit becomes deeply cracked and the whole surface has a rough, corky appearance. The injury is caused through the saliva of the Capsids killing the tissue, and is not, as was at one time supposed, due to bacteria entering the punctures. Apparently the Capsid bugs have changed their habits, for it is only of recent years that they have attacked Apples and Currants to any great extent. Dr. Imms recommended spraying about ten days before the blossoms open and said that it is advisable to spray again after the blossoms have fallen. The best wash is nicotine and soft-soap using three ounces of nicotine (98-99 %) and four pounds of softsoap in forty gallons of water.

Another pest dealt with was the Pea Thrips, Kakothrips robustus. This pest has become very troublesome in some parts and sometimes spoils the whole crop. Apparently no variety of Pea is immune to attack. In bad cases of attack no pods are formed or those that form become curled and undersized. The eggs are laid within the flowers on the stamen sheath or on the young developing pods. The insects hatch in from seven to ten days and have a bright orange appearance. In about three weeks the larvae bury themselves in the soil where they remain until the following spring. Both the larvae and the adult insects are injurious. Early sown plants are less severely attacked than later one. Because of the eggs being laid in the flowers spraying is useless, but when the pest attacks the pods and the foliage they may be destroyed by spraying with soft soap and water, one pound of soft soap in ten gallons of water, or a nicotine spray may be used, such as is recommended for Capsid bugs.

Dr. Imms next gave some helpful hints on the cyaniding of houses to destroy white fly, Aleurodes vaporariorum. He stated that fumigation should not be started until dusk, or death of the plants is liable, as wherever the light reaches part of the plants they are scorched and killed. He said it is rather a curious fact that the gas is less toxic in sunlight than in the dark. Dr. Imms recommended small doses with long exposure rather than large doses with short exposure. The fumigation should be conducted at intervals of 14, 21, or 25 days. Many growers consider that harm is done if the houses are fumigated when the conditions are very humid. Moisture does have some harmful effect, for plants when they are turgid are more susceptible to injury by the fumigant than when they are flaccid. Hence it is important that the roots of the plant should be as dry as possible and that the fumigation should be done before watering. The best two fumigants are one ounce of sodium cyanide, one-and-a-half ounces of sulphuric acid and three ounces of water, and tetrachlorethane used in the proportion of half-a-pint to every thousand cubic feet content of the house.

Referring to the great damage caused in some districts by the Cabbage-root fly, the lecturer stated that the application of tarred discs well warrants the expense and labour, and he showed a most interesting slide of plants that had been protected by the discs and others unprotected growing in the same field in which the results were most remarkable. Another method of combating the Cabbage-root fly is to water just round the plants with corrosive sublimate at the rate of one ounce of the sublimate to ten gallons of water. The watering should be done a few days after the plants are set out, and again six days later; sufficient of the moisture should be used to wet the soil around the stem of the plant.

In dealing with Begonia mite Dr. Imms stated that the best method of ridding the plants of this pest was to vaporise the house with a sulphur fumigant by means of a vaporiser.

Several interesting questions were asked by the members present, and Mr. E. A. Bunyard made the interesting observation that he had many years ago noticed in his nursery the Apple trees near to Elms were always very liable to attack by Woolly Aphis, and in consequence of this Apple trees were not grown in that part of the nursery now. With regard to Capsids bugs, he found spraying with Katakilla was most effective, and he considered this preparation one of the best all-round insecticides on the market.

Mr. H. R. Darlington asked if there was anything to account for the fact that in years when Aphides were very prevalent on Roses mildew was nearly always absent. Dr. Imms stated that he, himself, had noticed this, but he had no explanation to offer.

Mr. P. Bunyard stated that in the Swanley district the growers used a combination of nicotine and lead arsenate for the destruction of insect pests, thus providing a contact and poison wash at the one application. Mr. E. A. Bunyard also stated that this mixture was used with good results in other parts of Kent.

BRITISH MYCOLOGICAL.

A meeting of the British Mycological Society was held in the Botany Department, University College, London, on January 19, with Mr. J. Ramsbottom, President, in the chair.

The first paper was by Mr. W. J. Dowson on "Sclerotinia sclerotiorum affecting Antirrhinums via the stigma" (see p. 62).

Major K. W. Braid followed with some observations on "stag-headed" Oaks. The investigations so far have been carried out principally in Richmond Park. Old trees (at least two feet in diameter three feet above the ground) showed in different portions of the Park 60% to 75% infection by the beef-steak fungus, Fistulina hepatica. Sometimes fructifications were found on the buttresses of the roots, sometimes growing from the bark of the stem, but usually well up on the the larger limbs. Practically all the infected trees had been pollarded at one time and the original rot—to whatever cause it was due—had presumably started in this area. In almost every case where Fistulina was found the tree was "stag-headed." It was evident that the water content of the soil is not the chief factor in producing stag-headedness, for trees in hollows were often affected worse than those on higher ground. The consensus of opinion is that the condition is brought about by an insufficient water supply. Unavailability of water supply or an insufficiency of wood vessels for the tree's requirements would bring about the same results. Normally the leafage area adjusts itself to the supply of water which the vessels are able to supply for average years, and if exceptional causes arise (such as a drought) this equilibrium is upset and those portions furthest from the supply suffer most acutely. In the cases examined it seems that the fungus plays a large part in the hollowing of Oaks and is one of the main factors in causing stag-headedness. A tentative hypothesis to account for this condition would be as follows: The fungus is a weak parasite and following infection of a wound the mycelium gradually extends down the centre of the trunk and later along the main root, hollowness resulting. When the hollowness extends down into the earth, penetrating the lower portion of the main roots, the food in solution conveyed by the vessels in the lower parts of these roots either is wasted or utilised in very small part by the adjacent healthy cells which are still in direct connection with the xylem strands of the stem. Consequently the tree ceases to obtain a good portion of the liquid nourishment it previously received.

Miss G. Lister then gave an account of a collection of Mycetozoa made by Miss J. Drake in North India. The specimens were obtained at Serampon, near Calcutta, and Bim Tal, United Provinces, both in the lowlands of the Ganges Valley; at Kotgarh, north east of Simla in the Sutlej Valley, and Tindhari, near Darjeeling, both at considerable altitudes. The collection is interesting in that comparatively few Mycetozoa have been previously collected in Northern India, and exceedingly valuable in that it extends our knowledge of the distribution of many species. Five of the species are now to Asia, five have not been previously recorded nearer than from Japan, and twenty-three not nearer to the locality than Ceylon and Malaya. The distribution of Mycetozoa is full of interest and the present collection confirms previous conclusions. Many Mycetozoa have a world wide distribution, but certain species, and even genera are found to be characteristic of temperate, warm or cold climates. The gatherings from the heights of Kotgarh belong to species usually occurring in a more northerly latitude, while those from Serampon are either widely distributed species or have been found more frequently in the tropics.

After lunch Mr. F. Haworth described the generality of Ustilago.

After describing the general life history of the smut fungi, the minuter details of development were considered. The chlamydospore on germination in nutrient media produces a short promycelium which becomes transversely three-septate, each cell giving rise to a sporidium. The sporidia increases by budding. Brefeld found that if cultures of sporidia be kept until the nutriment of the medium is exhausted the sporidia can conjugate in pairs. Further, in exhausted media chlamydospores on germination form a four-celled promycelium, but no sporidia; conjugation in this case occurs between the four cells. Dangeard showed that the young chlamydospore is binucleate but that it becomes uninucleate as it matures. On germination the nucleus wanders into the promycelium and divides. The two nuclei divide again and when septa are formed between them there result four uninucleate cells. The sporidia also are uninucleate. Rawitscher found that in all cases of conjugation, whether between sporidia or the cells of the promycelium, the nuclei do not fuse but lie in close association. The mycelium formed is binucleate and this condition lasts until chlamydospore formation.

The author described some of his work with the cereal smuts of Barley and Oats, Ustilago Hordei and U. Avenae in which he had attempted to define the conditions under which sporidial conjugation might or might not occur, following on Kniep's work on Ustilago violacea. Single chlamydospores were isolated and on the formation of sporidia these were separated and pure cultures made before they could conjugate. In this way thirty to fifty cultures were obtained. These were then tested in pairs under conditions which would allow of conjugation if such were possible. As a result it is possible to state that the sporidia of U. Hordei and U. Avenae can be divided into two groups. The sporidia of one group will not conjugate amongst themselves but will readily do so with those of the other group. Both strains are, so far as can be ascertained, absolutely identical morphologically but differ physiologically, the difference revealing itself in the capacity to conjugate.

On a gelatine or agar-gel containing five per cent. malt extract conjugation will not occur but does so readily on similar medium with one per cent. malt extract. Conjugation can take place on a gelatine medium though i occurs more quickly on an agar-gel under similar conditions. Conjugation does not occur in the absence of oxygen: nor does it occur in an atmosphere of carbon-dioxide, nitrogen or hydrogen. Conjugation occurs best on a neutral or slightly alkaline medium: beyond a small range on the acid or alkaline side conjugation is inhibited.

The last paper was by Mr. T. A. Sprague, on "The principles of Nomenclature" (see *Gard. Chron.*, pp. 93, 104).

Most of the papers were followed by animated discussions. The flourishing condition of the Society is indicated by an incidental mention of the fact that the rapidly increasing membership now numbers 340.

Obituary.

M. C. Duchesne.—The Corporation of the City of London has lost a valuable servant in the death of Mr. Martin Collier Duchesne, who died at Farnham on the 1st inst. Mr. Duchesne had occupied the position of Ranger of Burnham Beeches since 1908, but he had many other duties and interests. He was chairman of the Forestry Committee of the Surveyors' Institution, the first hon. secretary of the English Forestry Association, secretary of the English Arboricultural Society, and a useful member of the Consultative Committee of the Forestry Commission.

R. Woodfield.—A well-known figure in the gardening world has passed away in the decease of Mr. R. Woodfield, who was eighty years of age. His first position as head gardener was at Clough House, near Rotherham, later he took charge of the gardens at Ketton Hall, near Stamford, for the Hopwood family, and later still became gardener to Lord Kensington, St. Brides House, South Wales, a position he held for twenty-five years. On retiring some sixteen years ago he took up residence with his daughter, Mrs. R. Reynolds, at Sheffield, where he died on January 4 last. To the last he was a remarkable old gentleman, and his love for the craft never left him. His genial manner and racy observations on gardening matters attracted many friends. He seemed to know all the gardeners of note, where they lived and their specialities.

NEW HORTICULTURAL INVENTIONS.

Latest Patent Applications.

888.—Harvey, L. G.—Production of fertilizers. January 11.

32,434.—Valentine, H. J.—Means for displaying flowers, plants, etc. December 28, 1923.

31,860.—Telfer, J. S. G.—Fertilizer. December 19, 1923.

Specifications Published last Month.

208,824.—Elias, J. J. M.—Machines for manuring and watering growing plants.

208,568.—Tailby, N.—Horticultural, agricultural, and like spraying apparatus.

208,891.—Smith, D.—Garden shears and the like.

208,025.—Warden, P. D.—Treatment of growing plants.

Abstract Published last Month.

Cimbination Rose for Watering Cans.—Patent No. 206,721.—A new watering can invented has two roses with holes of different gauge and a plain spout outlet, each of which may be used by itself as desired. This can is being produced by Messrs. Robinson Bros., Ltd., of Ryders Green Works, Phoenix Street, West Bromwich, Staffordshire. The spout of the can is provided with an extension formed with two or more nozzles or roses, provided with two inlet openings, and a tube is slidably mounted within the extension and has openings, one of which can be made to register with the opening leading to a rose, the other opening or openings being meanwhile closed by the tube. The end of the tube serves as a plain jet and is fitted with a detachable cap attached by means of a chain.

This list is specially compiled for *The Gardeners' Chronicle*, by Messrs. Rayner and Co., Register Patent Agents, of 5, Chancery Lane, London, from whom all information relating to Patents, Trade Marks, and Designs can be obtained gratuitously.

Messrs. Rayner and Co., will obtain printed copies of the published specifications and abstract only, and forward on post free for the price of 1s. 6d. each.

Inventions in 1923.

The industrial depression is clearly indicated by 3,000 less patent applications in 1923 than the total of 36,132 in 1922, which, however, numbers only a few less than the highest record of 36,372 in 1920.

ANSWERS TO CORRESPONDENCE.

Bowling Green Construction: *J. J.* There are two distinct types of bowling green used in this county—the English or Scotch flat green and the Lancashire crown green. From the character of your inquiry we gather that the information you desire refers to the flat green. One of the most important factors in the construction of a bowling green is the provision of adequate drainage. This is secured by draining the ground thoroughly with 3 inch land pipes set out in rows at about fifteen feet apart, and then covering the site with a layer of hard boiler ashes. This layer should range from a depth of 4 inches to 9 inches dependent upon the ease and cheapness with which this material may be obtained. When the ashes are thoroughly consolidated by the use of a heavy roller they should be covered to a depth of 3 inches with good porous sand, on which, after it has been made firm, the turf is laid. In order that every reasonable precaution may be taken to prevent the surface of the green being in the slightest degree uneven, many expert green contractors place each turf (cut 12 inches × 12 inches and 2 inches thick), grass side down, in a wooden mould 12 inches × 12 inches × 1¾ inches (inside measurement) where it is beaten with a wooden mallet until the soil becomes perfectly firm. A sharp scythe blade is then used to cut away the surplus soil and the turf is turned out of the mould with a uniform thickness of 1¾ inches over its whole surface.

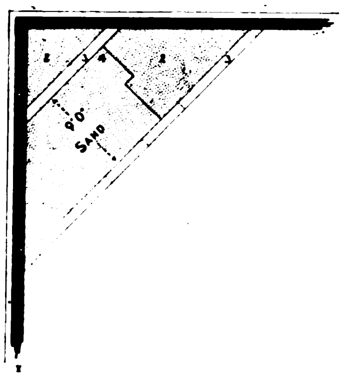

Fig. 44.—Construction of Bowling Green.
1 Ditch; 2, Turf; 3, Guide Boards; 4, Sand.

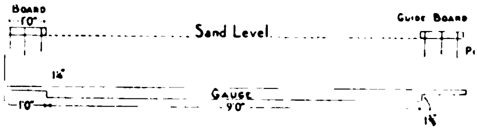

Fig. 45.—Construction of Bowling Green.
Guide Boards and Gauge.

Where expense is no object planed boards, 12 inches × 10 feet × 1¾ inch, are sometimes used as guides for gauging the thickness of the sand. These are placed diagonally in parallel lines across the green at 9 feet from inside edge to inside edge (Fig. 44), and are set out with a spirit level and their surface represents the finished surface of green. They are kept in position by counter-sunk steel pins placed at regular intervals throughout the length of the boards. A wooden gauge (Fig. 45) with a draught of 9 feet × 1¾ inch drawn along the wooden guides secures a thoroughly even surface of sand upon which the turves are placed and made firm by the use of a small hand beater. When the space between the boards has been filled with turves the inside boards are lifted and placed 9 feet away from the outer line of boards and, after being made level and firm, they are ready once again as guides for the gauge. The boards being 12 inches wide are the same size as the turves, hence as they are taken up their place can be immediately filled in by a row of turves which, being the same thickness as the boards, merely need to be beaten into position and tested with the spirit level. As the laying of the turf proceeds the surface should be dressed with fine soil and sand in order that the crevices between the turves may be graduallly filled.

Diseased Primula obconica: *Correspondent.* The plants have been attacked by the fungus Thielavia basicola, a well-known root parasite which affects a number of plants of very different families. Leguminous plants are most susceptible; but Tobacco, Violets, and Begonias are also attacked. The mycelium invades the plants by way of the roots, and the crown and collar are subsequently invaded, with the result that the whole upper portion of a plant may be removed by a slight pull, leaving the roots behind. The effect on the plant is a slow wilting and yellowing of the outermost leaves at first, and then the inner leaves wilt, and finally the top of the plant is separated from the base. The diseased portions appear black as if they had been charred. The presence of the disease indicates too much moisture at the roots and possibly too much humus—conditions likely to obtain in propagation pits when raising Primulas in pots. Badly affected plants, such as you sent, cannot be saved, although plants in the early stages of attack may be preserved by cutting away the diseased roots and repotting the plants in sterilised soil. It would be desirable to steam all soil used for the purpose of propagation in pots, and strict attention should be paid to watering. The addition of wood-ash, as a potash manure, is said to be detrimental to the fungus, and possibly watering the soil used for propagation with "Cheshunt compound" might kill the organism, as it does the foot-rot parasite of Tomatos.

Gardeners' Cottage and Notice to Terminate Employment: *A. J. M.* In view of the present state of the Law your employer would have difficulty in getting possession of the cottage unless he terminated your employment and required the cottage for occupation by your successor.

Names of Fruit: *C. F. G.* D'Arcy Spice (syn. Baddow Pippin).

Names of Flowers: *J. S.* 1, a poor form of Cypripedium Euryades; 2 and 3, C. Leeanum forms; 4, C. Leeanum hybrid, probably C. Leeanum × C. Exul; 5, C. Sedenii: *P. J. R.* Cupressus pisifera var. squarrosa.

Tennis Court Improvement: *J. C. M'L.* Impoverishment is generally the cause of mossy and weedy lawns. In the case of Plantains and Daisies there is no better way of clearing the lawn than by spudding them by means of an old knife, but this will prove a long and tedious operation if these weeds are present in large quantities. The best plan, if labour is scarce, is to thoroughly rake the lawn, freeing it from as much of the Moss as is possible, then apply a good lawn sand according to the instructions sent with the preparation. The lawn sand should be applied now and should be followed in spring by a manurial dressing of two parts of sulphate of ammonia and four parts of superphosphate applied at the rate of two ounces to the square yard. Sulphate of ammonia is also a useful chemical for destroying large weeds such as Plantains, and is applied by placing a small quantity in the crown of the weeds. Lawn Grass seed should be sown in the places rendered bare by the removal of the weeds and Moss.

Communications Received.—H. E. J. S.—Gardener—E. A. B.—T. A. S.—E. S.—H. P.—H. A.—W. L.

THE

Gardeners' Chronicle

No. 1940—*SATURDAY, MARCH* 1, 1924.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 41·6°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 20 10 a.m.: Bar, 30.2°; temp. 36° Weather—Cold with sleet

Cross Incompatibility in Cherries and Plums.

THE broad facts of the widespread complete or partial self-sterility in Cherries, Plums, and Apples, demonstrated by the investigations carried out at the John Innes Horticultural Institute, constitute by no means all there is of interest in Mr. Crane's Report, which was summarised in our issue for February 23. He shows also that in the cases of Cherries and Plums curious states of incompatibility exist between certain varieties. This incompatibility is manifested by the failure of a given variety to act as an efficient polleniser of another variety. A striking example of a measure of incompatibility running through whole groups of varieties is illustrated by the Cherries. Sweet Cherries (which are self-sterile), when one or other variety of them is used as the female parent and pollenated by a variety of sour Cherry or Duke, set fruit freely; but when the cross is made the other way the yield is markedly less. Mr. Crane's investigation of this subject enables him to class Cherries into three groups of incompatibles. In group one he includes Early Rivers, Bedford Prolific, Black Tartarian A (a form differing from the type by bearing small stellate instead of large imbricate flowers), and Knight's Early Black. Crosses made between any of these varieties yield, except in extremely rare instances, no fruit at all. Not only is each variety self-sterile, but the members of the group are sterile with one another. The same phenomenon is shown by Bigarreau de Schrecken and Bigarreau Frogmore which constitute a second group of incompatibles. It is also exhibited by the members of a third group which includes Bigarreau Napoleon and Emperor Francis. The intergroup sterility is well-nigh absolute; only in the cases of Bigarreau de Schrecken and Bigarreau Frogmore and the reciprocal cross were a few fruits formed. On the other hand, when crosses are made between members of different groups full crops are usually obtained. An interesting exception to this general rule is provided by the cross Early Rivers (Group I) and Bigarreau Frogmore (Group II). As a result of this cross a fair number of fruits is obtained, but after the Cherries have reached an advanced stage of growth they fall, and examination of the fruits shows that the embryos have developed very imperfectly. These facts are extremely interesting to the student of physiology. It is well-known that the germination of the pollen grain on a stigma and its growth into the pollen tube produces several distinct effects. The ultimate effect is, of course, the fertilisation of the ovule or germ contained in the female flower. But before fertilisation is effected and whilst the pollen tube is growing down the style some stimulus emanates from it, which results in a stirring up to active growth of the young ovary and of any other tissue destined to take part in fruit formation. As a result of this preliminary stimulation the ovary begins to grow in advance of the developing seed and even before fertilisation brings about the formation of the seed. The fact that the fruits of crosses made between members of one of the incompatible groups fall at an early stage, whereas the fruits of the cross Early Rivers × Bigarreau Frogmore reach a more advanced stage of development before falling off, would seem to suggest that in the former case the preliminary stimulus due to the germination of the pollen on the stigma and its penetration into the style produce a chemical stimulus not, as is usually the case, of a growth-encouraging kind, but of a growth-checking kind. On this view the extreme incompatibility of the members of one of the above groups would seem to be due to the production by the pollen of a toxic instead of a stimulating substance. In accordance with these views is the well-known fact that some fruits of Cherries, as well as of other plants, may develop perfectly and yet contain imperfect seeds. In these cases, it would seem as though the chemical stimulus due to the growth of the pollen tube is provided, but that fertilisation either fails to occur or results in an incipient seed which cannot grow. As with Cherries, so with Plums, groups of incompatibles have been found by Mr. Crane. Group I includes Coe's Golden Drop, Coe's Violet, and Crimson Drop (all of which are identical, except as regards colour, and of which the two latter are known to be sports from Coe's Golden Drop). Jefferson, however, appears to be unrelated with these, and hence the simple explanation that the group forms a natural family, cannot be maintained. Light may, perhaps, be thrown on these phenomena of incompatibility by an investigation of the nuclei of the several members of each group, but in the meantime, all that may be done is to note the facts, ponder over them, and apply them practically. Above all, it seems to us that some of the disappointments which owners of small fruit plantations experience may be traceable to the propinquity of self-sterile and incompatible varieties.

Apple Growing in the Argentine.—The Argentine Ministry of Agriculture has recently purchased, through the Government of New Zealand, one hundred and fifty thousand Apple trees for distribution by the Ministry to growers in the Argentine provinces. The trees are of the Northern Spy variety and will be planted principally in the Andean Provinces of Catamarca, San Juan and Mendoza, and in the territory of Rio Negro. Some of the trees will be planted in experimental stations in other parts of the Argentine.

Frozen Australian Flowers for the British Empire Exhibition.—A novel feature of the display in the Australian pavilion at the British Empire Exhibition this year will be the exhibits of fresh flowers from Australia. Frozen in ice blocks, the flowers will be carried in cool storage, and on arrival in London they will be placed in a glass-fronted refrigerating chamber in the Australian Pavilion at Wembley. The chamber will be used for the display of perishable food products exported from Australia, but whilst these prosaic exhibits will be of practical value, it may be anticipated that the flowers in all the freshness of their natural colouring and form, will attract wider interest amongst visitors. Throughout the exhibition, there will be a succession of floral exhibits of rare interest.

Flowers in Season.—A vase of the highly fragrant Iris unguicularis and its varietal forms I. u. alba and I. u. Imperatrice Elizabetha, have provided a welcome touch of colour on the Editor's table for the past few days. The blooms were received in bud from Messrs. Robert Veitch and Son, Exeter, and when placed in a plentiful supply of water they developed readily. It is important in opening this flower in a room that the "stalks" be immersed within an inch or two of the base of the flower, otherwise the blooms are inclined to flag and will not open. Iris unguicularis and its white form are fairly well known and are best grown in a sheltered part of the garden. The varietal form Imperatrice Elizabetha, which we believe is also known as angustifolia, is darker in colour than the type and usually flowers later.

The Sweet Pea Annual.—The annual publication of the National Sweet Pea Society becomes increasingly valuable with each issue, for it has now been published over a sufficient number of years to constitute a valuable record of the progress of a beautiful flower. The advance in any one year may seem slow, but when the earlier numbers of the nineteen issues are consulted it is seen how vastly superior existing varieties are in form, size and colouring to those when the Society was instituted. Some of the colours of the modern sorts eclipse anything seen in varieties twenty years ago, and few growers then would have believed such results to be attainable in this relatively short period. Naturally, progress becomes slower and slower, but there are endless possibilities for the flower, and the ideal yellow and blue varieties have yet to be realised. The audit of the most popular varieties, on p. 52, compiled by Mr. George H. Burt, shows that whilst many old favourites retain their popularity on the show bench, newcomers are ousting some from their foremost position. He states that Hebe has entirely superseded Hercules and is better than the old favourite on all points; Warrior leads as a dark variety, and that Austin Frederick Improved has become one of the most popular of the rosy-lavender varieties; Advance has done well as a novelty, chiefly on account of its rich colouring and preponderence of duplex blooms;

whilst the newer Valentine is the favourite blush variety. Those who wish to know which are the best varieties in the respective colour sections will find the Classification List most valuable. The chief articles in the *Annual* are entitled "Cultural Notes for the Novice," "Winning the Bath Cup," "The Joys and Sorrows of the Hybridizer," "Sweet Pea Notes from Dunedin," and "Account of the Sweet Pea Trials during 1921-23," by Mr. A. J. Cobb. There is an excellent portrait of the President, Mr. J. S. Brunton, as the frontispiece, and portraits of Mr. Andrew Ireland, Chairman of the Committee; Mr. C. H. Curtis—who was awarded the Henry Eckford Memorial Medal in 1923—Mr. J. Stevenson, Mr. Robert Bolton, and Mr. G. F. Drayson.

Jubilee of the Shrewsbury Floral Fête.—From the title page of the schedule of the Shropshire Horticultural Society we gather that this is the fiftieth year of the great Floral Fête at Shrewsbury, and the exhibition will be held as usual in the Quarry on Wednesday and Thursday, August 20 and 21. Upwards of £1,200 is offered in cash prizes; silver cups are offered for Carnations, for Roses and for fruit, and no fewer than six special cups and trophies are to be awarded to non-competitive displays. The large group classes will be continued and the premier award for a group of flowering and foliage plants is £45, while for a group of foliage plants £35 is offered as the first prize. Special encouragement is given for herbaceous plants and flowers, and for a group of these arranged in a natural manner on a ground space of 250 sq. ft., prizes of £20, £15 and £10 respectively are offered. There is also a new class for a collection of hardy plants and cut flowers of one kind only, to occupy a ground space of 60 sq. ft., and in this case the prizes are £10, £6 and £4 respectively. The schedule includes sections for pot plants, floral designs, Carnations, Roses and other popular flowers, while no fewer than thirty-three classes are devoted to fruits, including the Champion Decorated Fruit Table class and a class for twelve bunches of Grapes in four or more distinct varieties. Vegetables are fully catered for in a section containing forty-two classes. In addition to these, however, there are vegetable, fruit, plant and flower classes open only to cottagers and allotment holders in the county of Shropshire, and there are two classes for wild flowers. Altogether one hundred and seventy-one classes are included in this very comprehensive schedule. The Secretary of the Society is Mr. W. G. Brazier.

Record Apple Gathering.—In an Apple picking contest on an Ontaria fruit farm, a young farm hand broke all known records by picking forty-two barrels in nine hours. Another employee picked thirty-four barrels of Apples in the same time. It is interesting to learn that the contest was held on November 21 at a time when the English Apple crop had long been gathered, and that three years ago the farm hand was a news boy. It is stated that the trees were not very high and that the Apple picking equipment was of the best type.

Encouragement of Window Gardening in London.—In order to encourage window gardening, by the cultivation of plants in pots, baskets, or boxes, in the poorer parts of the Metropolis, outside the windows of houses, the Metropolitan Public Gardens Association is offering a number of prizes. The scheme will be held in connection with a mission, betterment association, flower shows, schools, and other organisations willing to manage the local work of receiving entries and of visiting the gardens pending the judging undertaken by the association, which is usually done in July. Some remarkable examples of window gardening may be seen in some of the poorer districts of London, and especially in courtyards and by-streets, and it is astonishing what a transformation is effected in drab places in the densely populated parts of the metropolis by a few bright flowers on the window sills.

Mr. C. F. Langdon.—The senior partner in the firm of Messrs. Blackmore and Langdon, of Twerton-on-Avon, Bath, Mr. C. F. Langdon, was born at Newton St. Loe, near Bath, and commenced his gardening career at Newton Park, the seat of Earl Temple, when Mr. W. G. Keel was head gardener. In 1886 he became gardener to the late Rev. E. Lascelles, at Newton Rectory. As most readers are aware, Mr. Lascelles was an enthusiastic amateur gardener, and at the time when Mr. Langdon joined him, tuberous-rooted Begonias were extremely popular. Such firms as Messrs. Lemoine, Nancy; Messrs. H. Cannell and Sons, Swanley; and Messrs. Laing of Forest Hill, were distributing new varieties. Mr. Lascelles purchased a collection of the best varieties of that time, including the famous jubilee set of novelties sent out by Messrs. Laing in 1887. In that year he began the work of cross-fertilisation and systematically continued it for a long series of years, and several notable firms introduced varieties of his raising. All crosses were carefully registered and the results noted. All the seedlings were grown under glass, either in pots or planted out in frames, and it was not until many years later that they were grown out of doors during the summer. Mr. Langdon continued with Mr. Lascelles until 1901, when he formed a partnership with the late Mr. J. B. Blackmore, who was also a great lover of flowers and especially of Begonias and Carnations. The firm has made several specialities in other directions since its formation, notably Delphiniums and Cyclamens, but Begonias have taken first place in their affection and have occupied most of the time of Mr. C. F. Langdon down to the present day. Up to the end of 1923 Messrs. Blackmore and Langdon had obtained no fewer than sixty-four gold medals for their exhibits, including a gold medal at Ghent in 1913, where their Begonias created quite a sensation. Perhaps the award of which Mr. Langdon is most proud is that of the Coronation Cup for the best exhibit at the Holland Park show in 1915. This exhibit was composed of Begonias and Delphiniums. On the death of Mr. J. B. Blackmore, in 1921, Mr. T. J. B. Blackmore and Mr. A. G. Langdon joined the firm as partners with Mr. C. F. Langdon, and are now assisting in the management. Mr. Langdon, senior, takes a keen interest in the Bath Gardeners' Society, and he is also treasurer of the Bath and District Horticultural Society.

MR. C. F. LANGDON.

Presentation to a Flower Show Secretary.—On February 16 at a meeting of the committee of the Dumfries and District Horticultural Society a pleasing little ceremony was performed, this being a presentation to Miss Jeannie Young, who has acted with so much acceptance as honorary secretary for the past four years. The presentation took the form of a gold bangle watch, subscribed for by the members of the Committee and some friends. Mr. A. W. M'Alister, the President, acted as spokesman, and referred in eulogistic terms to Miss Young's able services and to the excellent work she had performed. He trusted she might long act as Secretary and continue to do such good work for the society.

Journal of the Kew Guild.—All who are interested in Kew Gardens will welcome another issue of the *Kew Guild Journal* with its familiar green cover. The editor of this yearly publication is in the happy position of being able to draw material from contributors in all parts of the globe, for Kew men are to be found in all parts of the Empire and in remote places in all the five continents. Thus the present *Journal* contains articles from contributors in Uganda, tropical South America, the Riviera, the United States of America, Rodrigues, Copenhagen, Northern France, and other places distant and near. Mr. G. H. Pring's article on "A Kewites adventures in tropical America" is very interesting and describes an excursion in the Andean districts of Central and South America in quest of Orchids. Mr. Pring was very successful and, as a result of his journeying, added some 3,200 plants and seeds to the botanical collections in the Missouri Botanical Gardens at St. Louis. Odontoglossum flavescens, he states, is threatened with extermination in the district visited, as the natives collect the plants, strip them of their leaves, and carry the pseudo-bulbs to the local markets where they are sold for use as food. The district is the home of Cattleya Mendelii, C. Schröderae, C. Percivaliana, and C. Trianae and such interesting genera as Pleurothallis, Stelis, and Odontoglossum. In his journeying he met with Raspberrie which he describes as being bigger than the largest Strawberry he had ever seen, but he was unable to introduce seeds of this fruit owing to the obstinacy of his companions who decided to eat the berries as dessert. He describes the Tree Ferns on the hill sides as being of particular interest; in the district of La Maria he met with a very interesting vegetation, which included various species of Begonias, Anthuriums and other Aroids. Mr. Gammon's notes on the journey from Uganda are also very interesting. From the notes and gleanings dealing with events of the garden during the year we learn that the number of visitors to Kew during 1923 was 1,186,662, an increase of 42,904 compared with the previous year. The greatest monthly attendance was during May, when 204,586 persons visited Kew. It is interesting to notice that nearly as many visitors entered the Gardens on Sundays, as on the total number of week-days, the figures being 520,876 and 665,786 respectively. The visit of Queen Mary to the Gardens on November 27 is referred to and there is an illustration of the Maidenhair Tree that was planted by Her Majesty on the site of the Temple of the Sun, which was destroyed by the falling of a Cedar during a gale in 1916. We also learn from these notes that the Guild has adopted colours, green and gold—the same as those of the sports club—and a badge of suitable design and bearing the approved colours is under consideration. The frontispiece is a portrait of Mr. J. M. Hillier, President, who now has the longest record of service of any member of the staff. A considerable amount of space is devoted to the various clubs, an account of the dinner, the Mutual Improvement Society, the Botany Club, the lectures and other matters of special interest to Kewites.

Legacy to a Gardener.—The late Rev. Edwin Lascelles of the Grange, Weston Park, Bath, left £100 to his gardener, Mr. Harry Peck, who had been in his service for more than twenty years, and he also left £20 each to his gardener, Mr. Albert Hersey and his wife Mrs. James Hersey. The Rev. Lascelles was a keen horticulturist and his name is perpetuated in gardens in the very fine Delphinium Rev. Lascelles. The late reverend gentleman also grew Begonias and other flowers extensively in the vicarage garden at Newton, as is referred to in the paragraph concerning Mr. C. F. Langdon, on page 114.

Horticultural Club.—A dinner of the Horticultural Club will be held on Tuesday, March 11, at the Trocadero Restaurant, Piccadilly Circus. The dinner will be followed by a lecture by Mr. J. Ramsbottom, O.B.E., M.A., President of the British Mycological Society, entitled, "Edible and Poisonous British Fungi." The lecture will be of a popular character and illustrated by lantern slides. Full particulars may be obtained from the Hon. Secretary, Mr. G. F. Tinley, 5, Tavistock Street, Covent Garden, London, W.C. 2.

Appointments for the Ensuing Week.—Sunday, March 2: Wakefield and Northern Tulip Society's meeting. Tuesday, March 4: Croydon and District Horticultural Society's meeting: Royal Caledonian Horticultural Society's meeting. Wednesday, March 5: Morley and District Paxton Society's meeting; Royal Agricultural Society's Council meeting. Thursday, March 6: Nottingham and Notts Chrysanthemum Society's meeting. Friday, March 7: Orchid Club's meeting at Manchester.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Wages of Labourers.* In the mighty *Times*, some correspondents of note and fame have been abusing farmers for selling Wheat to their labourers, and asserting they sell them the worst or tailing Wheat, and term this as the "truck system." Now, this is by no means true. Many masters sell their labourers Wheat, but this is not compulsory, and many sell it to them for less than they get of the factor, sometimes for the same price, and instances I well know where they have it at 1s. or 6d. less per bushel than market price. A labourer with a family finds this cheaper than going to the miller, who often sells him inferior flour, and too often when they send grist to mill so many pounds of flour are abstracted and as many pounds of bran substituted; for white Wheat, inferior red Wheat is sent home. But millers and bakers there are who will cheat both the poor and rich man, and this has been the case from time immemorial, long before Joseph came into Egypt. But the farmer does not cheat his labourer by selling him Wheat, nor are all his wages expended in the purchase of this food. Half a bushel of good Wheat will maintain four of a family a week. The labourer will ask for Wheat of his master to avoid being robbed by the miller or baker. What would these writers say of Scotland, where their wages are paid out of the produce of the farm? Gold is not paid there every fortnight, it is not out of the purse but out of the granary he receives the reward of his labour. It is this custom that enables the Scotch landlord to receive a higher rent. Is the landlord then enriched at the expense of the poor man? is the question these men might ask and answer. But the tenant cannot be accused of defrauding the farm servant; nor can the English tenant be so accused. We know instances where a tenant's wife keeps a shop and there the labourer is compelled to buy the butter, cheese, candles, pepper, etc., he may require for his family, and by so doing, his 9s. a week is not worth 6s. This, no doubt, is a monstrous robbery; but who can correct it? This is the truck system. [*X. Y. Z., Hants. Gard. Chron., March 3, 1849.*

TREES AND SHRUBS.

RHODODENDRON MUCRONULATUM.

THERE is no doubt that this Rhododendron is closely related to the old and better known R. dauricum and, like that species, it is marked by producing its blossoms singly from each one of a cluster of flower buds at the end of the shoot. Maximowicz, the Russian botanist, made it a variety of R. dauricum, and many people are inclined to agree with him. Dr. Hemsley, however, in the *Bot. Mag.*, tab. 8304, retained it as a species, and in some correspondence I had with Sir Isaac Bayley Balfour, not long before his lamented death, he wrote, "I quite agree about the claim of R. mucronulatum to have a distinct specific name. I have never been able to bring it within the legitimate sphere of R. dauricum." R. mucronulatum is a much superior shrub for the garden, being larger, freer-growing and freer-flowering. Other points of difference will be found in the leaves, those of R. mucronulatum being much longer (up to four inches in length) and slenderly pointed, whilst in R. dauricum they are rarely more than 1½ inch long, and rounded or even notched at the end.

This season, R. mucronulatum has been very good, a dull and cold, but not frosty spell, enabling its blossoms, which opened in late January, to survive until the frosts of the third week of February destroyed them. For nearly three weeks two large groups at Kew made a charming display of bright rose-purple, their only rivals amongst shrubs flowering out-of-doors being the various Witch-Hazels. Naturally, flowering when it does, this Rhododendron needs some snug corner, shaded and protected from the east; all the better is it, too, if there is a spreading branch of an Oak or other not too greedy tree to give it some overhead protection. Owing to the almost invariable destruction of its blossoms sooner or later by frost, it cannot produce seed near London, but it may possibly do so in the south-west. Still, it may be increased by cuttings of leafy shoots taken in July and placed in gentle heat. The plants at Kew are mostly 5 feet or 6 feet high and there seems no reason why they should not in time become 2 feet or 3 feet higher—as they are in a wild state in Korea, Japan, and other parts of North Asia. *W. J. B.*

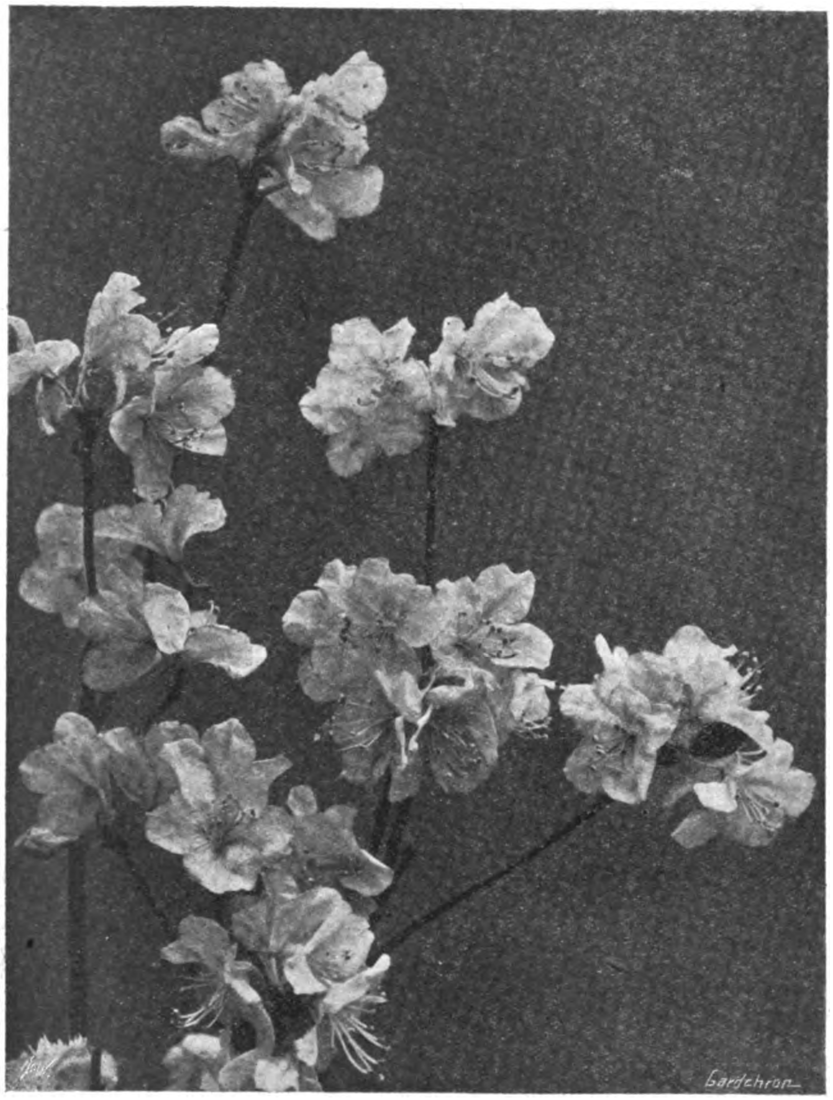

FIG. 46.—RHODODENDRON MUCRONULATUM: R.H.S., AWARD OF MERIT, FEBRUARY 12 (SEE ALSO P. 97).

MAGNOLIA DELAVAYI.

THERE is a fine specimen of this Magnolia in these gardens. It was planted in 1913 as a very small specimen, but has developed into a large pyramid-shaped tree, 12 feet high and as much through. Some of the leaves measure 16 inches in length and 8 in width. The tree flowers annually, but not very freely; this year it developed fourteen flowers, but, unlike other Magnolias, rarely more than one flower is expanded at the same time. The plant is growing in a sheltered spot at the west-end of a Peach house and garden wall. *E. Neal, Tilgate Gardens, Crawley.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman Bart., Gatton Park, Reigate.

Chysis.—After their long season of rest plants of such Chysis as C. aurea, C. bractescens, and C. Chelsonii are beginning to make new growth. For the present they should be afforded water sparingly at the roots, but after the flower spikes appear with the new shoots the quantity of moisture may be increased considerably. Directly the flowers have faded the plants will commence to develop fresh roots, and this is the best time to afford more rooting space to any that require it. Chysis are best cultivated in rather deep Orchid pans or pots, of not very large size and with wire handles attached, as these plants do best when suspended near to the roof glass. Coarse Osmunda fibre is the best rooting medium, and it should be pressed firmly around the base of the pseudo-bulbs. Grow the plants in an intermediate temperature until towards the end of their growing season, after which they should be removed to the East Indian division to assist them to swell and complete their new pseudo-bulbs. Afford water sparingly at the roots until the latter have grown freely in the new soil. Syringe the plants on all favourable occasions, as they are subject to attacks of red spider.

Pleione.—As these Orchids pass out of flower and commence to make new growths, they will require to be re-potted. Use well-drained pans of medium depth as receptacles. A suitable compost consists of good fibrous loam and A1 fibre in equal parts cut up rather short, with the earthy particles shaken out, and a little powdered cow-manure, charcoal and crushed crocks added. Care should be taken not to break the new roots or young growths. After repotting the plants place them in a position near to the roof-glass, in a house having an intermediate temperature, and spray them frequently overhead. Afford the roots very little water until they have grown freely in the soil.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Hardy Annuals.—In the majority of gardens sowings of Sweet Peas, one of the most popular of hardy annuals, are made in the open, and advantage should be taken of the earliest favourable opportunity for making the first sowing, which may be followed by successional sowings if desired. Whether sown in clumps or rows the sites should have been thoroughly prepared last autumn so that complete consolidation of the ground is assured. Large sections of hardy annuals usually sown where they are to flower may be sown now and at any time during the present month. Although in theory these may be sown from February to May, in practise it is usually found that those sown in March do best as they become established and are able to withstand dry periods in late spring and early summer whereas late sown ones frequently become so weakened as to give little satisfaction. The sites for these annuals should have been well prepared during the winter and the surface now raked as finely as possible for sowing. Sow the seeds thinly, cover them slightly with fine soil, and thin the seedlings early.

Perennials.—Where extensive borders of hardy herbaceous perennials are grown it is always wise to have a stock of plants in the reserve garden. A large number may be raised from seed sown now in the open. Seedlings of such popular plants as Aquilegias, Delphiniums, Heleniums, Helianthus, Lupins, Oriental Poppies, Rudbeckias, Sidalceas, etc., frequently flower in the late summer months, and many others make strong plants by the end of the season, these being useful for carrying out autumn renovations or additions.

Azaleas and Rhododendrons.—The buds of these highly decorative shrubs will soon be swelling and if any filling or further planting is necessary it should be done forthwith. Firm planting is essential for these shrubs and a liberal mulching of rotted vegetable manure will be beneficial to them.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

The Cold Orchard House.—A cold orchard house is undoubtedly a great acquisition in low-lying districts for the growing of choice hardy fruits. In such districts, late spring frosts are most troublesome, and it sometimes happens that a whole season's crop is lost owing to the destruction of the flowers by frost. An unheated orchard house is inexpensive to maintain, and with it a crop of fruit is doubly assured. The chief points to observe when erecting an orchard house is to ensure the house receiving the maximum amount of light and to make provision for abundant ventilation when necessary. In selecting trees for growing under glass, whether for cultivation in borders or in pots, choose the very choicest varieties of each kind, and include a good pollen bearer to assist the fruits to set. Another advantage obtained under glass is that those varieties lacking in flavour when grown outside can be greatly improved in this respect by good cultivation inside. Assuming that the trees have been already established in pots, they should now be placed in the house without delay. Beyond examining them occasionally to ascertain their requirements for water, they will need little attention for the time being, and no attempt should be made to force them at this stage, but free ventilation must be provided when the weather is favourable for admitting plenty of air. The secret of success in growing all hardy fruits under glass, either planted out, or grown in pots, lies in withholding high temperatures until such time as the fruit is set. All hardy fruits may be quickly increased in size after the pips or stones have formed by closing the house early and conserving the warmth of the sun's rays.

Vine Eyes.—Vine eyes that were inserted in early January have rooted and are growing freely. Where the planting of green vines in May is contemplated, I would strongly recommend the use of small seed trays or boxes as receptacles. When it is found that the young vines have rooted freely, they should be planted in a good, open compost near to one end of the tray in order that when planting takes place they may be easily arranged in position and, moreover, the roots will grow in the direction they are required to. This method of growing the vines in seed trays for transplanting is far preferable than growing them in pots, for the roots do not become entwined and so establish themselves in the new soil very readily. A little care is needed when applying water to the vines in boxes until the roots are active; pots are best used for growing on vines intended for forcing.

PLANTS UNDER GLASS.

By F. J. Clark, Gardener to Lt.-Col. Sir George Holford, Westonbirt, Tetbury, Gloucestershire.

Caladiums.—These ornamental-leaved exotics are amongst the most attractive of foliage plants, and by reason of the ease with which they may be grown are valuable for furnishing the stove in the summer as well as for grouping with Palms and other plants. Tubers which have been rested should now be shaken free of the old soil and potted singly into small pots. The compost should consist of equal parts of rather lumpy peat and loam, adding a little dried cow manure and a liberal quantity of crushed charcoal and coarse sand. The tubers should not be potted too firmly. Varieties may be increased by dividing the tubers with a sharp knife, afterwards rubbing powdered charcoal over the cut surface. Very little water will be required until the plants are making active growth. Grow the plants in a temperature of 65° to 70°, and if a little bottom heat can be provided the tubers will start into growth more kindly. The plants should be transferred to larger pots before they become pot-bound; the larger-growing varieties should be grown on in 8-inch or 9-inch pots, according to the vigour of the varieties. The pots should be well drained, as copious supplies of water will be needed when the plants are in full growth. Varieties are numerous and, whether many or few are grown, all collections should include the dwarf kinds C. argyrites and C. minus erubescens. The first named is less easy to cultivate than other varieties. It should be grown in pots of small dimensions with several tubers in each pot. Care should be taken not to over-water the plants in the early stages of growth.

Gloxinias and Achimenes.—Rested tubers of Gloxinias and Achimenes should be started in batches according to requirements. These plants grow best in a light, open soil, comprised of mellow, fibrous loam, peat or leaf soil, with some well rotted manure, crushed charcoal and sand added. Gloxinias may be either started in boxes, allowing sufficient space between each tuber for the leaves to develop, from which they may afterwards be transferred to the pots in which they are to flower, or in small pots and afterwards transferred to larger ones. As in the case of Caladiums, little water will be needed at the start, but afterwards liberal quantities of moisture will be required. A moist atmosphere should be maintained always and the plant shaded from strong sunlight. Achimenes may be started in pans, placing the tubers thinly therein, from which they may be transplanted into pots or baskets when an inch or two of growth has been made; or the tubers may be placed in the receptacles in which they are to flower. In this case great care must be exercised in watering to guard against the soil becoming sour. The same conditions as to temperature, atmosphere and shading apply to Achimenes as to Gloxinias.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Peaches.—Loosen the shoots of wall Peach trees from their fastenings, and take out the fruiting wood of last season, retaining as much young growth as is required to furnish the wall. All strong breast shoots should be cut clean out, and as many of the basal growths as possible retained to present a well furnished appearance when the trees are in leaf. In training the young wood, tie some along the old stems to protect them from the sun and furnish the base of the tree. Peach shoots do not swell so much as those of Plums or Apricots, but room should be allowed, when tying or nailing them, for a certain amount of expansion, Long shoots at the ends of branches should be shortened to one-third of their length, cutting to a strong bud. Trees that are infested with scale should be well scrubbed with Gishurst compound. If the young shoots require cleansing take care that the buds are not rubbed off in the process. The shoot should be held in one hand, and the brush drawn gently up it the same way as the buds lie. I emphasize this, as much damage may be done in a short time by a careless person. If the trees require renovating lightly fork the surface soil, remove the portion disturbed and apply a dressing of fruit manure, or a mixture of bone meal, soot, and wood ash. Fork these materials in the soil, taking care not to damage the roots. The old soil removed should be substituted with fresh loam cut from an old pasture.

Plums.—The pruning of Plum trees should now be completed. Plums, and especially young trees, are apt to make very strong thick wood the first few years after they are planted, therefore particular care should be taken that they have room to swell. This tendency to make strong growth may be obviated by root pruning or replanting at the proper season. Plums, in common with most stone fruits, need plenty of lime in the soil, and old mortar rubble should be spread on the border and forked in at any time after the trees have been pruned and nailed in position.

Fruit Prospects.—Apple trees are well set with plump buds, and Pears also look very promising, as do the Plums and Cherries. All fruit trees have had a good rest, and, in consequence, I expect to see the blossom strong and well developed. Provided the blossoms are not ruined by frosts there is good prospect for a plentiful fruit harvest.

THE KITCHEN GARDEN.

By WALTER Y. STAWARD, Gardener to MRS. JOHN FEENEY, The Moat, Berkswell, Warwickshire.

Broad Beans. — Another and larger sowing of Broad Beans should be made, as this constitutes the main sowing. The Broad Bean rewards generous cultivation by producing heavy crops of fine quality pods. Allow a space of two feet six inches between the rows and a distance of eight to ten inches between each bean seed.

Short Horn Carrots.—Sow seed of stump-rooted Carrots in shallow drills made ten inches to one foot apart on a south border. Choose a day for sowing when the ground is in good working order, and see that the soil is well forked on the surface and made as fine as possible, for the finer the ground is worked the better will the roots be. After seed sowing dust the ground with soot at intervals to ward off slugs.

Parsnips.—Old Parsnips still in the ground should be lifted and stored in sand or ashes and the ground manured and dug for another crop.

Herbs.—Where it is desired to raise a young batch of herbs the seed should be sown now in boxes and germinated under glass in heat. Seedlings have more vigour than plants raised from cuttings. Thyme, Tarragon and Mint may be increased by division at the present time.

Seedlings.—If plenty of frames are available and a fair depth of soil in them, another sowing of Brussels Sprouts, Cabbage, Cauliflower, Lettuce and Leeks should be made. There is an advantage in having a plentiful supply of these young plants in frames, for the majority raised in the open are liable to be eaten by finches, linnets and sparrows.

PUBLIC PARKS AND GARDENS.

MR. A. KEELING, superintendent of the Southend-on-Sea Public Parks and Gardens, has been presented with a gold watch by the Essex County Cricket Club in recognition of his services to the Club in connection with the County Cricket matches held at Southend. The presentation was made by the Mayor, Alderman W. Miles, at the meeting of the Town Council held on February 19, and in making the presentation the Mayor stated that the Corporation, as well as the County Cricket Club, appreciated the work Mr. Keeling did.

PLANTS NEW OR NOTEWORTHY.

PSEUDOTSUGA DOUGLASII, VAR. CANDIDA.

FROM Messrs. W. Power and Co., Nurserymen, Waterford, I have received specimen branches of an Oregon Douglas Fir tree, which is remarkable for the beautiful shining white colour of its foliage. This sport, which it is intended to propagate by grafts, may fittingly bear the name Pseudotsuga Douglasii, var. candida, Power. The tree, (see Fig. 47) was discovered hidden away in a shelter belt six years ago and is now 33 feet in height; and is said to be in no way inferior in size and vigour to the other Douglas Firs with normal green foliage beside it, which were planted at the same time, some twenty-five years ago. The early history of the tree is unknown, and it is uncertain whether it bore white leaves in the seedling stage or developed this peculiar character in its foliage at a later period of its growth.

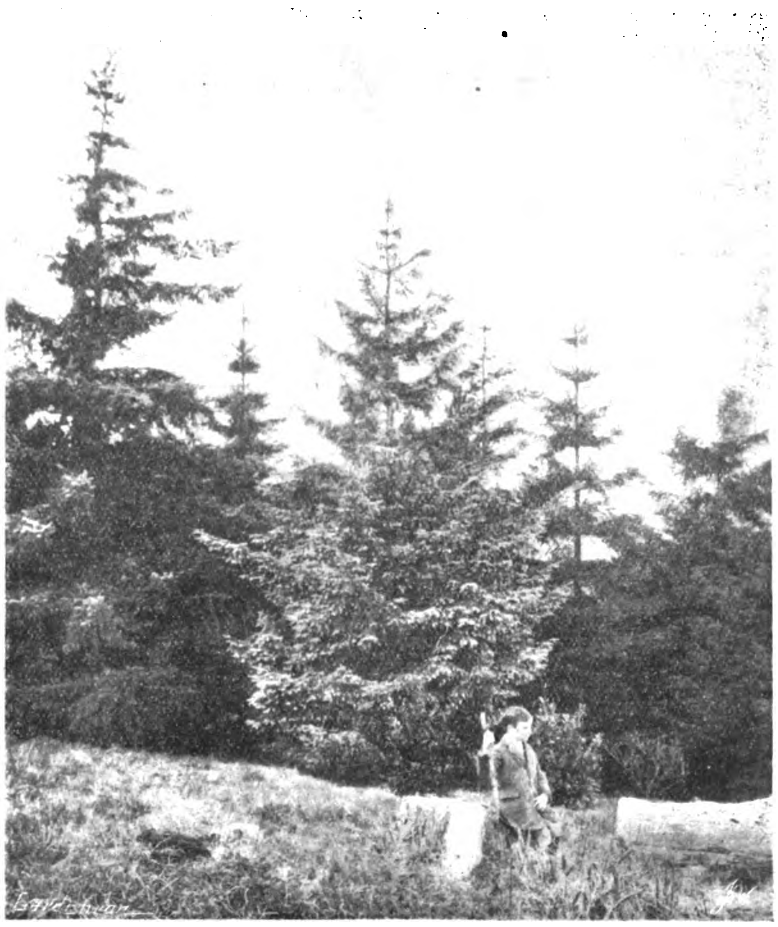

FIG. 47.—PSEUDOTSUGA DOUGLASII VAR. CANDIDA.

An examination of the branches shows that the whiteness of the leaves is most conspicuous on the current year's shoots and lasts throughout the first season unaltered till the end of autumn. During the ensuing winter, the leaves begin to assume a greenish tint in part; and this change goes on increasing till the end of the second season, when all trace of the original whiteness is lost, and the leaves have become normal green in colour.

The ornamental silvery appearance of the foliage in this sport is due to lack of chlorophyll, and is a form of temporary chlorosis, the origin of which is obscure. The amount of chlorophyll in the leaves of the current year collected in October was estimated in the Jodrell Laboratory at Kew to be less than one-eighth of that in the green leaves, which were gathered in December from a branch of the preceding year of the same tree.

The Waterford sport has probably originated elsewhere, but has apparently not been recorded. In 1920, branches of a similar tree were sent to Kew from Dawyck by Mr. F. R. S. Balfour. Coloured forms of the Douglas Fir seem to be little known in England, and none are mentioned in Dallimore and Jackson's recent book on Coniferae, except P. Douglasii, var. Stairii, which originated at Castle Kennedy many years ago. These authors describe its foliage as "light golden yellow at first, becoming green in autumn," but as Sir Herbert Maxwell points out, "var. Stairii is never much better than sickly white with a bilious tinge," and all the specimens seen by Elwes and Henry were poor in colour, and shrubby or feeble in growth.

The Waterford sport, as mentioned above, is very vigorous, and quite distinct in its shining silvery foliage, and promises to be an ornamental tree of great value if it can be successfully propagated.

On the Continent, several silver-leaved varieties of the Colorada Douglas Fir (Pseudotsuga glauca) have been raised from seed gathered in the Rocky Mountains, the best known being a bushy form, which has been named var. argentea compacta, Beissner. I have not seen the variety with whitish blue leaves, raised at Boskoop in Holland and known as var. argentea, Koster; but judging from the description it is a bluish-white coloured form of the Oregon Douglas Fir, which is quite distinct from the Waterford var. candida. *A. Henry.*

ANNUALS FOR CONSERVATORY AND GREENHOUSE DECORATION.

HELIPTERUM.

Helipterum roseum (syn. Acroclinium) and its white variety, album, are charming and graceful plants for cultivation in pots. Seeds may be sown during January and February, and again in June for autumn flowering. The flowers are "everlasting." As it is generally supposed that seedlings cannot be transplanted successfully the usual pratice is to sow the seeds directly into the flowering pots (48-sized pots being usually considered the most suitable size), afterwards thinning the seedlings to ten or twelve in a pot. Helipterums may, however, be successfully—and with advantage—transplanted; the young seedlings should be pricked off directly into 48-sized pots. Transplanting has the desirable effect of making the plants break into a cluster of shoots from the base. Water should, of course, be carefully afforded until the plants get well established, but apart from this their successful cultivation depends largely on cool treatment in a light, airy house and timely support with a few twigs.

Helipterum Manglesii (syn. Rhodanthe Manglesii), of which there are also rose and white, as well as double varieties, is as beautiful and useful as H. roseum, and requires similar treatment.

ALONSOA.

Alonsoa Warscewiczii is, perhaps, the most beautiful and popular member of its genus. The bright scarlet flowers are very effective. Successful cultivation calls for no special care, other than that afforded other plants of this class, as it grows quite well in any good potting compost. The seedlings transplant easily, and seeds may be sown during January and February, and again towards the end of June, if plants are required for autumn flowering. Alonsoas may be grown singly in 48-sized pots, but in such case they should be stopped several times to promote a bushy habit. Where larger specimens are required three or four plants may be placed in each six-inch pot.

Other species that may be treated as annuals are A. acutifolia, A. linearis, A. myrtifolia and A. albiflora.

ASPERULA.

The pretty, blue-flowered Asperula azurea setosa is a hardy annual and very useful when grown in pots for the cool greenhouse or conservatory. It succeeds under the same kind of treatment as that afforded Alonsoas. It should be remembered that in common with all very slender habited plants of this class, this Asperula should be grown in perfectly cool conditions, with plenty of air, for if kept at all close the plants grow weakly and make poor specimens.

VEGETABLE GARDEN.

GARDEN BEET.

The Garden Beet (Beta vulgaris hortensis) is a plant for which we have to thank Southern Europe, for, although one species of the genus Beta grows luxuriantly on our shores, the seedlings, even when most carefully cultivated, only produce a mass of ugly, woody, and stringy roots which are only fit for the dunghill.

The reception accorded to Beta rubra at its introduction does not appear to have been very enthusiastic, but during the four centuries that have elapsed since that time a whole string of varieties has been developed—long, oblong, half long, flat, globe and peg-top shaped, with bronze, green, or purple-coloured leaves of many forms, and with succulent, juicy flesh, varying in colour from the white Bassano, through many shades of pink, red and purple, down to the purplish-black of the old Whyte's variety. Truly a sufficient selection in size, form and colour.

In addition to the before-mentioned varieties there are the Long Yellow and Round Yellow which, if they did not so closely resemble small Mangel Wurzels in colour and shape, would be the most highly esteemed of all; the flavour of both these varieties is equal, if not superior, to that of any red-fleshed variety in cultivation.

Although the foregoing were mentioned in *Lawson's Manual* nearly a century ago they have never become popular in this country; the same neglect applies to the Bassano variety introduced from Italy by Naismyth about 1830, notwithstanding that the flesh is pure white, and the root grows to a large size and is of a most agreeable flavour.

It a pity that in matters of this description we are such slaves to custom, and allow the market grower and the chef to dictate to us what we must eat, drink and avoid. It is as unwise to destroy the natural flavour of the Beet by soaking it in vinegar as it is to spoil the most luscious and juicy bivalve in the same silly fashion.

The Beet plant is quite easy to cultivate, and flourishes in any soil except a cold, heavy clay; it is by no means a gross feeder and is usually at its best on land that has been well manured for a previous crop, such as Celery or Onions. The choice of varieties is practically unlimited. For the 1922 trials of the Royal Horticultural Society 107 stocks were submitted, of which no fewer than thirty-one received awards. A list of these, with full descriptions, appears in vol. xlviii, part 1 of the *Journal* of the Royal Horticultural Society.

For very early and for latest sowings the round varieties are the most suitable; these are also to be preferred when it is intended to use the roots as a vegetable. For salad purposes the intermediate and long varieties are most esteemed as they are more solid and of a deeper colour, and, although the earthy flavour is more pronounced, the salad dressing tones it down very considerably. The yellow-fleshed varieties should only be used as a vegetable.

Miller, who is usually a very safe guide in such matters, got rather badly mixed up over Beet when, having described them as large and of a deep red colour, on which their goodness depends, he adds, "the larger the roots grow the tenderer they will be, and the deeper the colour the more they are esteemed." Justice gives a quaint piece of advice which may be of interest to some—"If they are sown in hot dry land they spire up in June or July, which makes their roots small and sticky. To prevent which, suffer them to run up six inches then cut over the stalk close to the ground and hoe up a little earth to the plant and their roots will thereby swell considerably and be fit for use. The best Beetrave is the round Turnip-rooted kind."

A previous article on this subject by the writer, which appeared in the *Gard. Chron.* for May 19, 1923, concluded with the sentence —"Lastly, do not forget to utilise the leaves." Their food value only needs to be put to the practical test in the method described, and there would not be any excuse for throwing good food to the dunghill.

As the *Journal* of the Royal Horticultural Society may not be accessible to all the readers of the *Gard. Chron.* I append a list of the varieties to which awards were made at the trial referred to:—Round varieties: Egyptian Re-selected, Crimson Globe, Express Crimson Globe, Eclipse, Perfect Model Globe, Reliance Globe, The Cooper Taber; Intermediate or oblong varieties: Feltham Intermediate, Intermediate, Queen Mary, New Intermediate; Long varieties: Cheltenham Green Leaf, Northumberland Red, Covent Garden Red, Pragnell's Exhibition, Dell's Crimson-leaved Selected, Omega, Market Favourite, Long Purple, Volunteer, Dell's Black-leaved, Victoria, Middleton Park, Long Red Selected, Dwarf Red and Brydon's Exhibition. *S B. Dicks.*

SEED POTATOS.

Why are seed Potatos scarce? Why are orders sent to Scotch growers and merchants being refused? The answer is supplies are short, very short, and that has become more and more apparent as the season has advanced. When the crop is put into the pits in September, October or November the grower estimates what proportion of seed-sized tubers are in the crop and seed sets are sold based on that estimate. A very large grower and merchant wrote me the other day that seed sets were dressing out one-third less than was estimated, and in many cases he would only be able to deliver half what had been ordered by many of his customers. My own firm is similarly placed regarding two leading varieties, and it has been compelled to refuse further orders for them. Some 20,000 fewer acres were planted under Potatos in Scotland in 1923 than in 1922. This is not to be wondered at as at this time last year thirty shillings per ton was about the price of ware; this year the same class of produce is worth £9 to £12 per ton, and ready sellers are few. Many farmers who held big stocks and were not committed to sell seed-set size to merchants dressed their Potatos over a one-and-a-half inch riddle and sent all above that size to the market because the ware price was so good. This reduced the usually available supply of seed most materially. From the beginning we all knew early varieties would be scarce; they went into the pits in very poor condition and some varieties are now almost unprocurable at any price, notably Epicure.

Gardeners also who had fresh seed sets from Scotland last year would be well advised to plant the produce of it this year if they still have some of it unused. The Potato crop is one which quickly responds to good treatment and this should be provided by everyone in such a season as this. If the land was dug in autumn, a fresh deep-digging now with a digging fork will be all to the good; manure, both natural and artificial, should be liberally used. The tubers should be well sprouted before planting—strong stubby sprouts an inch long are right. If these things are rightly done the crop can easily be increased by twenty-five per cent., and a smaller area will consequently suffice. People who have still to order seed Potatos will be well advised to leave the selection of varieties largely to their seedsman. Order whatever quantity is required of an early, a second-early and a late or main crop variety, and instruct the seedsman to send the best available variety in each section.

I will, in conclusion, illustrate by a few figures how the serious shortage has come about. Great Scot, a most popular immune second-early stands thus: in 1920, 16,989 acres were grown, in 1921, 13,196 acres, in 1922, 11,326 acres, and in 1923, 9,410 acres. Arran Comrade dropped from 5,607 acres in 1921 to 1,258 acres in 1923. Even the favourite Arran Chief dropped from 29,473 acres in 1922 to 21,021 in 1923. Many farmers said they were not going to lose any more money by growing Potatos and dropped out to a great extent. The wise ones carried on strongly, following up a very bad market by a full planting, and now they are reaping their reward.

New varieties worthy of a trial are Di Vernon, an early, heavy cropping kidney variety, with tubers slightly marked with colour like King Edward, but purple. Katie Glover, a round, second-early variety, marked with rose colour. These two sorts are immune to Wart Disease. Those who were fond of the old Up-to-Date type should give Field-Marshal a trial. It is a russet-skinned Up-to-Date and has given most satisfactory crops in many districts.
W. Cuthbertson, Duddingston, N.B.

GARDEN NOTES FROM S.W. SCOTLAND.

Snowdrops—the common Galanthus nivalis—are notoriously fastidious in their requirements. Where soil and climate are to their liking they multiply very fast by offsets and seed; whereas in some districts they have to be treated as garden plants and, even so, are the reverse of luxuriant. Here, as in many other places on the western seaboard, they sheet the floor of such woodland as is not carpeted with Ivy to the extent of many acres. Where Ivy creeps thickly Snowdrops do not get a fair chance of spreading. A friend whose fine place is on the west coast wishing to establish Snowdrops in his grounds, we supplied him with a large quantity of bulbs several years ago. The conditions there are not dissimilar from those here, and there was no apparent reason why the Snowdrop should not flourish as freely in his grounds as in those of his neighbours; but they have not done so. They survive, and that is all, the flower stems being stunted and the blossoms small. When on a visit recently to this place I came to the conclusion that the cause of deterioration consisted in the bulbs having been planted on sloping lawns covered with close turf. Returning home, I compared the Snowdrops growing on similar lawn turf with those in the woods. The difference is very great. Those in the open are much smaller than those among trees where the surface is loose. I measured some of the latter, and found the stems to be just twelve inches high, not pulled up, but cut off flush with the ground. Perhaps this note may be of some use to those who have failed to establish Snowdrops in their grounds.

Of course, I ought to have observed this long ago; but never gave the matter a thought, because where Snowdrops spread so fast as they do here, their special requirements seemed not to be more specific than those of Dandelions. Between twenty and thirty years ago we conceived a project of supplying Covent Garden market with Snowdrop blooms. A considerable space of sloping lawn was thickly planted with bulbs; but they have never prospered, and their flowers are much smaller than those in the woods. Grasses are understood to maintain their predominance in pasture partly by the action of toxic properties in the roots, tending to suppress other vegetation—this, combined with the firm texture of lawn turf, prevents Snowdrops developing and increasing in competition with grass.

The brightest colour in the flower border just now is the intense carmine of the shoots of Paeonia Cambessedesii from the Balearic Islands. These shoots are now (February 20) four or five inches high. *Herbert Maxwell.*

GARDENING IN CENTRAL AFRICA.

Writing last summer from his station in the Shiré Hills, at four thousand five hundred feet altitude, my son stated: "My garden is wonderful, chiefly due to the excellence of the Antirrhinums, Delphiniums, and Sweet Peas, which I raised from Sutton's seeds. I have never seen anything to approach the Antirrhinums in the sturdy habit of the plants, the profusion of flower, or the brilliance and variety of the colours. The different types of height and colour as shown on the packets all came true, and if anyone made a garden of one kind of flower, Sutton's Antirrhinums would fill it perfectly. The Delphiniums are glorious, of all shades of blue, and the Sweet Peas, which are eight feet in height, with strong stems and very large flowers, are far better than any I have ever seen. The deep soil of leaf and grit deposit evidently suits Sweet Peas. I have had ten gatherings already. The flowers keep better in vases in the shade of the verandah than in the garden."

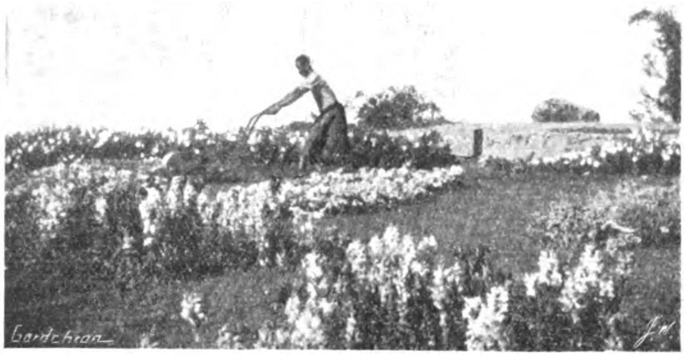

FIG. 48.—ANTIRRHINUMS IN CENTRAL AFRICA.

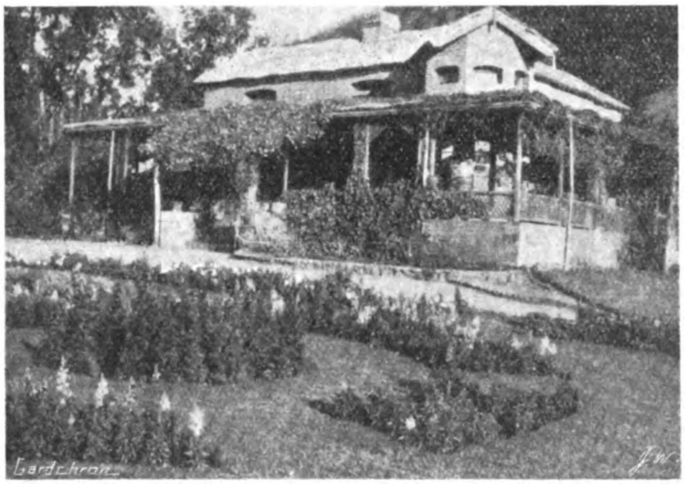

FIG. 49.—DELPHINIUMS AND ANTIRRHINUMS IN A CENTRAL AFRICAN GARDEN.

My son was home on leave (the first since April, 1917) last autumn, and with the aid of the photographs, which I enclose (Figs. 48, 49). was able to give proof that his estimate was correct. I think it must be of general horticultural interest that many of our favourite garden flowers should be grown as successfully in Central Africa as at home. *James O'Brien.*

ORCHID NOTES AND GLEANINGS.

ORCHIDS FOR INDOOR DECORATION.

In making a selection of Orchids to be grown for indoor decoration, one has to take into consideration the adaptability of the plants. Firstly, they should be those that do not require a high temperature to produce their flowers, and secondly, they should be of easy growth. Suitable kinds and varieties of Orchids may be procured for a modest outlay.

Considering the length of time the flowers of Cypripediums last, either on the plants or when cut, Cypripediums are especially suitable for indoor decorations during the winter. A dinner table decorated with C. Maudiae or C. insigne Sanderae, skilfully arranged, will, I think, satisfy the most fastidious. In forming a collection of these plants for the purpose of obtaining cut flowers, it is essential that the varieties grown are those that produce long stalks. There is great variety of form and colour in this large family, and individual taste may easily be satisfied.

Another genus which promises almost endless variety is Cymbidium, and for the decoration of large rooms, either as a pot plant or a cut flower, there are few plants to compare with these Orchids for the stately appearance of their long spikes of bloom, and very few for their lasting qualities as cut blooms. Instances of flowers lasting months in a cut state are not unknown amongst these beautiful plants, and when it is considered that a greenhouse temperature is suited to their requirements, it is not surprising that they are popular with growers.

Amongst the cool-house Orchids there are several most desirable families which are invaluable for the purpose suggested, namely some Oncidiums, Odontoglossums, Masdevallias, and Odontiodas. These comprise a series of plants with flowers of the brightest and most delicate hues. Although the blooms of these are not so long lasting as those previously mentioned, they are, compared with the life of other flowers, of considerable duration.

Bright, highly-coloured flowers that show up well under artificial light are supplied by the innumerable varieties of Cattleya and Laelio-Cattleya, and these Orchids may be had in bloom the whole year round by growing and selecting varieties which flower at the different seasons of the year. The newer yellow-flowered Laelio-Cattleyas are especially valuable for indoor decoration, whether the plants are used or the flowers cut. *J. T. B.*

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WILLIAM BAXTER, CURATOR OF THE OXFORD BOTANIC GARDENS, AND HIS CORRESPONDENCE.

(*Concluded from p.* 106).

SIR JOSEPH PAXTON, 1803-1865.

UNDER date of September 8, 1837, Paxton sent Baxter a list of some rare plants found in Derbyshire, and among these he instances "Drosera rotundifolia on the moors near Chatsworth, Pyrola rotundifolia in one place in a large plantation near Chatsworth." (In Linton's *Flora of Derbyshire* P. rotundifolia is bracketed as an error, nor is there any mention of P. minor from this neighbourhood); "Andromeda polifolia, once seen on an elevated tract of moorland a short distance from Buxton; Claytonia virginica, unquestionably wild a short distance from Chatsworth, in an elevated part of a large plantation bordering Chatsworth Park, its situation is such as not to offer any probability of either seeds or plants having been conveyed there by any other means than by nature." (This is the first record of Claytonia sibirica growing wild in Britain. It is duly recorded on this evidence by Baxter in *Phaenogamous Botany*, vol. iv, t. 253, 1839. The account in Linton's *Flora of Derbyshire* is not quite accurate). "Malaxis paludosa occurs here and there in the neighbourhood of Matlock and Buxton and a solitary specimen I once picked in a field bordering the Moors near Chatsworth liberty." (This is not included in Linton's *Flora of Derbyshire*, nor in *Topographical Botany*). "Pinguicula vulgaris I find rather common a little south of Buxton, on the limestone rocks. Linaria spuria is not common, being only found in one place." (This is omitted from the *Flora of Derbyshire*). "Galeopsis I have only once or twice found on the road south of Buxton."

October 10 (?), 1839, Paxton wrote:—"I have this morning gathered specimens of Claytonia from the same place I originally found it and am more firmly than ever convinced of its being natural to the situation—in short that if you saw it you would at once concur with me in considering it so. It occurs in patches for the space of two or three hundred yards, from north to south, across a thick wood, springing up amongst the underwood, sometimes quite thick, at other times less plentiful. The ground gradually slopes to the north and is throughout the whole of the year very wet in consequence of the underwood and great quantity of fern, which constantly excludes the beams of the sun. On pulling up some of the plants, which showed that the roots were running in the decayed and decaying leaves quite free, the strongest were to be found in the soil, which is there of a stiff yellow loam, rendered stiff and heavy by constant moisture. Claytonia has been in flower since last April. What convinced me more satisfactorily that I am justified in considering it a natural species is its not being found in any other part of Chatsworth, or indeed I have not met with it in gardens in this neighbourhood. I send you plants of Azalea procumbens (cultivated here) and Chrysosplenium alternifolium, which is very scarce in Derbyshire though plentiful near Trentham, Staffordshire. The figure of Claytonia is very faithful and well got up." Paxton compliments Baxter on the excellence of his *Phaenogamous Botany*.

There are three letters from Paxton in 1840; in that of May 6 he simply asks Baxter to supply him with some missing numbers of the *Phaenogamous Botany*, which he is having bound. That on May 9 relates to the proposed establishment of a new Gardening Paper, since "the *Gardeners' Gazette* is so unsatisfactory being a disgrace to Gardeners and the Gardeners' profession, and ought not to exist. A highly respectable paper for the Gardening World, to be conducted in a gentlemanly manner, and containing interesting matter, is very much wanted . . . . I need not say that much of the success of the paper depends on it receiving assistance from clever, respectable persons. I have, therefore, taken the liberty of asking you as a personal favour to write an article or two for the first numbers with your name attached to them." Paxton had written to other of his friends "who will, he has no doubt, comply with his request, the purpose being of giving the Gardening World a respectable newspaper. Prospectuses shall be sent directly they are ready."

On June 13, Paxton wrote, "You will be surprised at not having received the prospectus before now. The truth is that while we were arranging some difficulties another paper was announced and issued called the *Gardener's Journal*; on enquiring we have found that it is connected with Mr. Glenny Clerk and Mr. Booth who has managed the *Gazette* for him from the commencement, therefore it is more necessary now to bring out a good paper than before, for from the appearance of this Journal and the parties conducting it, it promises to be only a shadow of the *Gardeners' Gazette*. The plan we propose to pursue is to announce a paper to come out at no distant period, say three or four months, which will be supported and assisted by the following Botanists and Gardeners, and Dr. Lindley to be announced as principal Editor. What I want you to be so good as to do is to send me a line to say you will support such a paper if properly conducted; it is quite necessary that the Gardening World should know that a respectable body of persons will support and assist in bringing out a paper that will be worthy their attention. I am happy to tell you that nearly every one written to have given their cordial and immediate sanction." (This letter refers undoubtedly to the institution of *The Gardeners' Chronicle*).

JOHN LINDLEY, 1799-1865.

In 1837 Lindley asked Baxter for the loan of Convolvulus farinosus from the Sibthorp Herbarium for inspection.

REV. ANDREW BLOXAM, 1801-1878.

The Rector of Twycross, Leicestershire, Rev. Andrew Bloxam, sends Baxter, on July, 1830, a little work entitled, *A Guide to Bradgate Park and notices respecting the Natural History of Charnwood Forest*; the appendix contains a list of the plants, but many have been added since it was published. He had found Radiola on the Barby Road, not, however, where Baxter originally found it, but higher up among the furze on the left hand side of the road; but could not find "the Small Fleabane on the Hill Morton Road; the Hypericum pulchrum and humifusum grow there and also Veronica officinalis, Jasione montana and Hieracium umbellatum." He had been noting the plants in the *Midland Flora* which had been found by Baxter, and sent a list of those he required for his herbarium.

On July, 1835, the Reverend gentleman wrote that he had found several plants from the neighbourhood of Rugby, whence the letter is written, and stated he had found Potamogeton zosterifolius and compressus (mucronatus) near Rugby in the canal. He had also found P. zosterifolius at Swacheston Bridge, Derbyshire, but this "is the first time he has heard of its being found in Warwickshire" (first published by Bloxam in Supplement *New Botanist Guide* in 1838, but the plant had been previously found by Countess Aylesford in 1791). At Mr. Bree's he saw a fine collection of British Roses in the garden, as well as other rare plants, including Tordylium maximum. Mr. Bree pointed out Rosa Doniana and Turritis glabra in the vicinity.

On August 28, 1850, he sent a large packet of British Rubi for Baxter (these I discovered in 1863, infested with larvae, in the outhouse of the Botanic Gardens: such as were capable of being preserved are now in the British Plants at the Fielding Herbarium). Bloxam also asks for the loan of Schaeffer's work on *Fungi*; on October 31, 1850, he acknowledged the receipt of the book and the "*Fasiculus* which seems very nicely got up." He says he sent fifty species and varieties of Rubi on large paper, 20 × 12, including R. Leesii. He has no doubt "Bagley Wood would yield many species from the number he saw there in a very limited space of time. The Leicestershire Flora for the County History will contain nearly 2000 species of Phanerogams and Cryptogamic Plants." He states that he has already a list of about 950 of the former; Mosses and Jungermannia, 150; Lichens, nearly 200; Algae, a tolerable list; and Fungi, 6-700. Purton's *Midland Flora* he thinks only contains about 1600 species, and he hopes to send Baxter a copy of his work next summer.

On August 4, 1855, Bloxham asks Baxter to accept the *Leicestershire Flora* from himself and Miss Kirby, but wants a copy of the Richardson Correspondence, as well as Mr. Pratt's works. He has an engraved portrait of Mr. Pratt from a picture by Sir Thomas Lawrence.

On October 12, 1866, he offers thanks for Rosa hibernica and sepium; he is satisfied there are many more species of Roses in Britain than is usually given in botanical works: "two or three in this neighbourhood are very distinct, R. andegavensis and tomentella, the latter is not at all uncommon, and the day before yesterday I found it in a place ten miles distant from Twycross." He states that he gave a biographical lecture at Loughborough before the members of the Literary and Philosophical Society, on three Leicestershire-born celebrated botanists—Dr. Pulteney, born at Loughborough and the two Sherards born at Bushby. "The lecture was attended by at least 100 people and was well received." He mentioned the Sherardian Professor and the Herbarium at Oxford and exhibited a specimen of Sherardia arvensis and of Pultenaea, and an engraving of Pulteney. In the grounds of his host, Mr. Herrick of Beaumanor, he found Agaricus blandus and Peziza leporinus of Sowerby, the latter five inches in length

On July, 31, 1867, he asks for dried specimens of Rosa hibernica, and states he has "found Poterium muricatum at the foot of the embankment near Millbrook" (already recorded for the county by T. Kirk).

On August 9, 1867, Bloxam thanks Baxter for the dried specimens of Rosa hibernica, and hopes later to obtain a living plant. He also writes that he "has been to Kew and seen the collection of Roses and Brambles there."

In a letter dated January 29, 1868, he asks for suckers of Rosa hibernica and sepium, and offers R. britannica from Cheshire.

An undated letter, but which we may presume was written in 1847, since there is in my possession a specimen and a letter dated November 9, 1847, which Bloxam sent to Mr. Ansell of Hertford. Bloxam says he sends specimens of a newly-discovered British Plant, "a small pond near Twycross is completely filled with it," and he hopes to send living specimens for the Botanic Garden in the summer (no doubt Elodea canadensis). Bloxam also sent seeds of Sonchus oleraceus to show how they differ from the common garden plant which is S. asper, whose seeds are rough.

J. S. HENSLOW.

The correspondence from the Rev. John Stevens Henslow, Professor of Botany at Cambridge, 1825, and Vicar of Cholsey, Berkshire, begins with December 6, 1826, when he sent a subscription for the set of *Stirpes cryptogamicae oxonienses* which Baxter was preparing; he offered to supply him with specimens and says he is busy in preparing a new edition of the *Cambridge Flora*. He had recently found Aecidium Pini in abundance and offered Baxter specimens for the Fasiculi. On February 10 he acknowledged receipt of the Fasciculus and on February 1 ordered three extra sets. In June, 1830, he wrote for fresh specimens of Senecio squalidus "from the walls of Oxford." On June 6, 1837, Henslow thanked Baxter for the proposed compliment (that of the dedication of the third volume of *Phaenogamous Botany* to him) and suggested that "M.A., F.L.S. are quite enough titles to append as that is the way in which Dr. Hooker dedicated the first volume of the *Botanical Magazine*" to him. *G. Claridge Druce.*

BULB GARDEN.

FRITILLARIA PALLIDIFLORA.

IF we may judge from his note on p. 79 in the issue for February 9th, *R. E. A.* has been somewhat unfortunate in his experience of this Fritillaria. He appears to describe F. pallidiflora, but the expression "From the greyish-green foliage rises a stem" is hardly accurate, because all the leaves are on the stem, which is usually bare for two inches or more at the base.

It is nearly twenty years now since I first grew this plant from a bulb that Sir Michael Foster gave me. Before I gave up my garden at Godalming in 1920 this one bulb had increased to 40 or 50, without counting those that I had given away to friends. Other plants I have raised from seeds, and there is a certain amount of variation in individual specimens, but I should have said it was a very poor, weak specimen that only produced one or rarely two flowers. The bed of the plant in my Godalming garden, with stems 18 or 20 inches high each bearing five or six of the pale yellow bells amid the very glaucous, grey foliage (Fig. 50), always attracted the attention and admiration of visitors, and I am glad to say that I still have a few bulbs left, though they do not do so well in a London suburb as they used to do on the Surrey sand.

The chief difficulty in the cultivation of Fritillaria pallidiflora is, I believe, that the bulbs are only dormant for about a fortnight, usually in June, and it is therefore not easy to move the plants without injury to the brittle roots. When the bulbs must be lifted, they should be dug up almost before the stems collapse and it will be found that they are then rootless. They should be replanted not more than a month later and I incline to think that they do best in a light, rich soil, not deficient in lime. I have always grown the plant in full sun and find it hard to believe that a Turkestan plant will do well in half shade or in woodland as *R. E. A.* advises. *W. R. Dykes.*

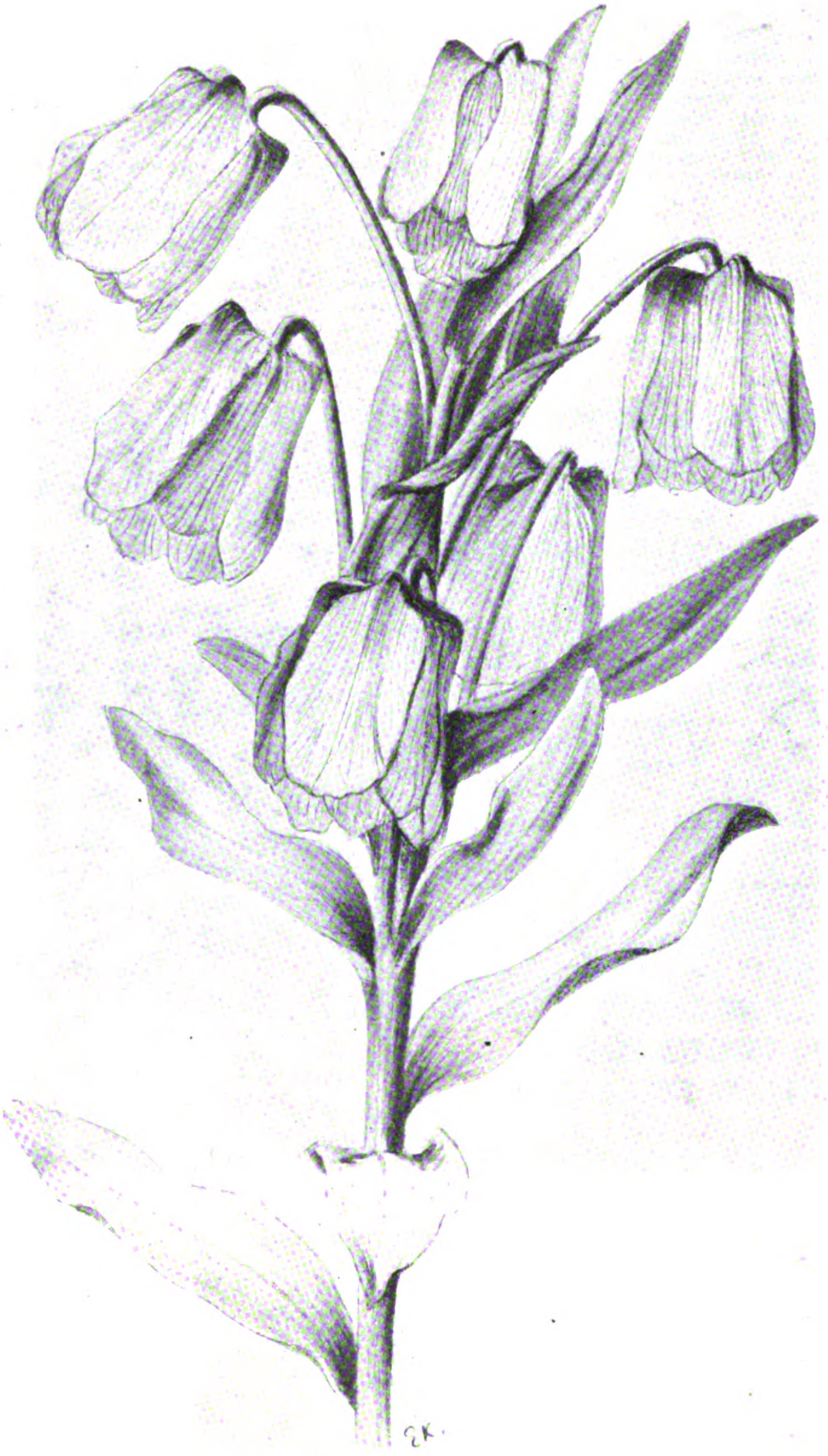

FIG. 50.—FRITILLARIA PALLIDIFLORA.

ALSTROEMERIAS.

THESE tuberous plants, known commonly as Peruvian Lilies, constitute a beautiful race of garden plants that are extremely useful for decorative purposes. They have long been in cultivation in this country, but not so generally as their merits deserve.

For the most part they are hardy and of easy culture, yet a warm position is better suited to them than the ordinary herbaceous or mixed border; the base of a wall facing south is an ideal place for growing them, and they may remain undisturbed for several years; they much resent disturbance at the roots.

A well-drained and rich sandy loam is the best rooting medium and an occasional surface-dressing of similar material is all the attention required after the plants have become established, a condition which is rather slow of accomplishment, with some species at any rate.

They may be propagated by division of the roots or by seeds, which are produced in plenty. Alstrœmerias are not well adapted to pot culture, owing to the long, bundled roots, but the more tender species are excellent subjects for planting out in a cool conservatory or corridor.

There is a strong natural tendency to variation, but I do not think that any success has attended the efforts made to effect a cross with Bomarea, to which the Alstroemerias are allied.

During severe winter weather, it is advisable to afford the plants a little protection. A. aurantiaca was introduced from Chile in 1831, and has flowers of rich orange colour. It is a good garden plant and also one of the hardiest species: A. aurea and A. lutea have flowers of varying shades of yellow with faint flushings of red. Both species are free-flowering and robust, and as in the case of A. aurantiaca, increase very rapidly.

A. chilensis has flowers of various shades of pink, white, yellow, red and orange, and with curious and beautiful markings. This species is excellent for supplying cut blooms and a batch of plants furnishes a most beautiful array of colour in a suitable border. All the above species are natives of Chile.

A. psittacina, which was introduced from Brazil in 1829, has green and red flowers. This species is not quite so hardy as some, so that it is advisable to plant it in a warm and sheltered position.

A. Pelegrina and its white form are both lovely plants, unfortunately too tender to be planted in the open; they are, however, eminently suited for a cool house, in which they will produce their exquisite blossoms with the greatest freedom.

By growing a representative collection, Alstroemerias may be had in flower from early June to late September; the blooms are fairly persistent and last well in a cut state.

Many others have been in cultivation, and it is somewhat difficult to assign limits between species and varieties in this family; almost endless variations have been obtained and all are worthy of cultivation. Those enumerated are, with the exception of A. Pelegrina, hardy, and all are excellent garden plants. *R. E. Arnold.*

SOME UNSOLVED PROBLEMS AFFECTING THE FRUIT GROWER.*

Serious research into questions affecting fruit growing may be said to date from the time the late Miss Ormerod commenced her entomological research, a period of about forty years. For the major portion of this time and with the exception of one isolated case, that of the work of the Duke of Bedford and the late Mr. Spencer Pickering, in fact until the last 15 years, the research and study into fruit growing has been confined to the causes of diseases, whether entomological or mycological, and to their prevention or amelioration. Pathological workers have covered a vast field, not only as regards the actual diseases, but also into the action of the chemical spray fluids used for combating them.

The elucidation of these problems, though difficult and requiring considerable patience and time, is in the main straightforward. Briefly, it consists in determining the most vulnerable phase in the life history of the parasite and of then attempting to eliminate the pest either by a direct killing attempt or by rendering the host impervious to its attacks.

The problems to which I wish to refer in this paper are what may be termed physiological problems and these have received detailed attention only within the last fifteen years.

They consist of the study of all problems connected with the growth and fruition of the tree or bush in health. The Duke of Bedford and Mr. Spencer Pickering studied some aspects of the question, but no real systematic research work was carried out until the Research Stations at Long Ashton and East Malling were founded. Growers, of course, have noticed the effects produced by various methods of culture, and by the vast accumulation of such knowledge practice has been modified from time to time. Many of the progressive growers have propounded systems of culture, as the best means of obtaining success, and these have each had their vogue, but, as I have said, of systematic research—which alone is of permanent value—little has been done. This is all the more surprising seeing that upon these problems depend the extent to which a fruit plantation will be successful.

The real reason for this neglect is that the problems all consist of enquiries into operations which, on the face of them, seem simple, but which, when investigated in detail, are difficult of solution by reason of the fact that the desired results cannot be obtained by separating the whole problem into water-tight sections and by elucidating each in turn. Growth and fruiting are the result of the complex interactions of many factors difficult to control.

For instance, it is impossible to lay down a satisfactory method of pruning Apples by taking a series of trees in a plantation, pruning them in different ways and then noting the results. Other factors such as rootstock influence, soil water content, manuring, climatic conditions, etc., come into play, and combined may easily produce effects which will completely cover up the real results of the pruning experiments and consequently cause deductions which may be not only misleading but also diametrically opposed to the correct answer to the question. The chief problem I have chosen for review, and I am aware it covers an immense field for research, is the question of the fruitfulness of the various commercial varieties of Apples under varying soil and climatic conditions.

Some ten or fifteen years ago, most of the unfruitfulness in Apples, if not considered due to lack of manuring and the usual cultural operations, was put down to their self sterility. More recently it was found that with few exceptions Apple varieties were self sterile, that is to say they were unable to set fruit with their own pollen. To some extent, no doubt, reduction of crops has taken place as a result of planting large breadths of one single variety. To my mind, this cause is only one of the minor reasons of unfruitfulness, for as a general rule there is sufficient pollen of other varieties in the neighbourhood for the purpose of pollenating the small number of flowers required to produce a crop.

The essence of the problem is the determination of the factors which go to make the tree fecund, *i.e.*, capable of bearing fruit—and it is this main question which has received so little attention. There is no doubt that failure to produce fruit is due to the fact that physically the tree may be barren just in the same way that many animals are barren or only partially fertile. We know perfectly well that by making breeding animals over fat we produce artificial barrenness, similarly by judicious feeding we make them more prolific. With fruit trees we get a similar state of affairs.

(*To be continued.*)

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* Summary of a paper on "Some Unsolved Problems Affecting the Fruit grower," read by Captain R. Wellington at the "Fruit Conference" held at Seale-Hayne Agricultural College, Newton Abbot, Devon, on January 22, 1924.

HOME CORRESPONDENCE.

Young Lads and Horticulture.—I am afraid it would be rather difficult for young men who have centred thier ambitions on horticulture to commence a fresh career in another calling. When the cost of living is cheaper horticulture will probably regain its importance of pre-war days, then we shall be able to prove that there are lads to-day quite as keen and ambitious as there were twenty years ago. Between now and the time when gardening on a larger scale is possible again I suggest that those who are disengaged should transfer their interests to market gardening and resolve to gain all the experience and knowledge they can, until the the time comes for the achievement of their ambitions. *Young Journeyman.*

—— I was pleased to see by the note from Mr. C. E. Hudson on p. 81 that young gardeners can obtain a certain amount of scientific education by means of short courses of study at the Hertfordshire Institute of Agriculture, St. Albans; that is a big step forward which has been wanting for many years. I am well aware of the valuable instruction given in the Wisley Gardens of The Royal Horticultural Society, but it is impossible for the young gardener working in private establishments to take advantage of this for various reasons; he must begin his life's work in a good garden at fourteen years of age or soon after that, and cannot be away for a two or three years' course without suffering loss in other respects. I have often thought that if something in the way of short terms could be arranged for young gardeners at Wisley, it would have met with the approval of the donor—Sir F. Hanbury—who was such a good friend to gardeners, and would appear to be an easy matter for the Royal Horticultural Society to arrange. As things are at present the private gardener gets very little help or encouragement from the Royal Horticultural Society although his skill and exertions in times past have helped the Society immensely, in fact but for the private gardeners' help in years that are past the Society would not be in the fine position in which it is to-day. Some correspondents write that the prospects for young gardeners are not very good: with this opinion I quite agree so far as private gardens are concerned, so many owners of estates having had to reduce their staff, and other establishments are closed altogether. As a consequence of this the large number of journeymen who were required before 1914 may never be wanted again. There will, however, always be a demand for good men who have thoroughly studied their profession: public gardens and parks will increase in numbers, and need superintendents and foremen, whilst commercial horticulture is extending with the rapid growth of the population, especially in regard to the supplies of plants, flowers and fruits. The younger members of the profession should endeavour to gain a wider knowledge and experience, and not restrict their attention to the work of private gardens. *W. H. Divers, V.M.H.*

Loss of Fragrance in Musk.—All who remember the strongly-scented Mimulus moschatus are indebted to Mr. E. M. Holmes for his interesting article (p. 78), with its many facts and suggestions as to how the plant has lost its scent, and possible recovery. Among other reasons he apparently fears that Harrison's Musk may have been propagated so freely and grown in mistake for the older plant as to have eventually supplanted it. But was this hybrid likely to be mistaken for the old scented Musk? In 1882, a plant known as Harrison's Musk was grown as a pot plant in this district. Its stems were about six inches in height, carrying broadly, ovate, coarsely toothed leaves, of the same texture as the other Musk, but less downy. The yellow flowers of medium size were faintly spotted with pale brown. The Musk scent was present, but only slightly. If this plant was the true Harrison's Musk, and I see no reason to doubt it, I fear the theory of substitution put forward by your correspondent must fall to the ground. No one could mistake the one for the other. *L. Coombes, Nyman's Gardens, Handcross, Haywards Heath.*

Mulberry Trees.—Having read with great interest Mr. A. D. Webster's article in your issue of January 19 on Ancient Mulberry Trees, a few notes relative to the uses and propagation of the Mulberry may also prove interesting to your readers. These are from personal observation of a three-hundred-year-old tree in a Suffolk garden. The fruit of the Mulberry makes an excellent wine which, if carefully bottled, is like Champagne. A fine jelly may be made from Mulberries mixed with Crab Apples, but the berries should be gathered before they are quite ripe. Mulberries will keep well if bottled, but must be dry when picked. Mulberry liqueur also may be made. These are only a few uses to which the fruit may be put. As to the tree itself it is, indeed, "The wisest of trees." During the many years in which I knew this old Suffolk tree, it never once came into leaf until all danger of frost was over. The propagation of the Mulberry, if there is an old tree, is not difficult. One simple method is to cut some fruit-bearing branches (they occasionally break off), and insert them firmly and deeply in rows, in the autumn, in a shady border; most of them will have rooted by the following autumn. A still older method is to tongue and layer a branch into a box of soil suspended in the tree, the branch being sawn off when the roots have formed. The Mulberry should have a place in every large garden, but not in a small one. *E. M. Hewat, Langford.*

Lapageria rosea.—I do not think that this plant is correctly described as sub-tropical (p. 67). Like so many other Chilian subjects it makes itself quite at home in the milder districts of Great Britain, including all the southern and western counties from Sussex round by Cornwall and Wales so far north as Invernesshire. It seems about as hardy as the common varieties of Camellia, but will not bear so much exposure to sunshine, flourishing best on a north aspect. The most formidable difficulty in getting it established comes from slugs, which are particularly partial to the green shoots, like slender Asparagus, which Lapageria sends up from the roots. A ring of perforated zinc placed round the stem serves to keep the enemy at bay. *Herbert Maxwell, Monreith.*

NURSERY NOTES.

MESSRS. STUART LOW AND CO.

The nurseries of Messrs. Stuart Low and Co., Bush Hill Park, Enfield, always afford interest and instruction, for there are at all times to be found many plants of especial beauty and not usually to be met with in general cultivation. The hardwooded "New Holland" plants are a special feature, and of particular merit are the Acacias, of which Messrs. Stuart Low and Co. grow a large selection, including A. pubescens, a beautiful plant with drooping branches of feathery foliage, bright flowers and useful for training over the rafters of the greenhouse; A. leprosa, with simple leaves, which, when rubbed, emit an uncommon odour; A. armata and A. Drummondii, which make excellent pot plants and are grown extensively for market: A. Riceana, with drooping branches, and A. cordata, with spiny phyllodes.

Boronia megastigma and B. heterophylla are two subjects grown in large quantities for the market trade, and it is interesting to note that they are proving highly popular not only on account of their delicious fragrance, but because they possess good lasting qualities and remain attractive in dwelling rooms for many weeks. B. elatior is also a striking species, and is interesting in that many flowers ranging in colour from reddish-brown to deep purple, are often produced on one branch. Leptospermon scoparium, represented by the varietal forms Nichollii, carmine; bullatum, Chapmannii, bright rose, and Boscowenii, a very beautiful form with large red flowers and compact habit, are to be seen in large batches: while Ericas and Epacris are also grown in great profusion. Erica gracilis and E. g. nivalis are the chief sorts grown for the autumn and winter trade, followed by E. melanthera, E. hyemalis, E. ventricosa, E. Veitchii, which makes a good pot-plant and is hardy, and E. persoluta. Of interest, too, was E. cyathaeformis, which, we believe, is synonymous with E. persoluta laevis, and is an improvement on the type and destined to be a very valuable market plant.

Other interesting subjects noted during a recent visit were Correas, ranging in colour from creamy white to intense scarlet; Aotus gracillima, a Leguminous plant with yellow flowers; Mitraria coccinea, a beautiful spring flowering plant for the greenhouse; Grevillea Preissii and G. alpina; Myrtus communis and M. Luma, the latter a plant which has been in cultivation for hundreds of years and is now rarely met with; Chorozemas in variety: Callicarpa purpurea, grown for its clusters of blue berries, and Agathaea coelestis, a Composite giving a quantity of flowers resembling a small single Aster and of an entrancing pale blue colour. Considerations of space forbid enlarging this list and we can but state that there were hosts of other old-world plants deserving of note.

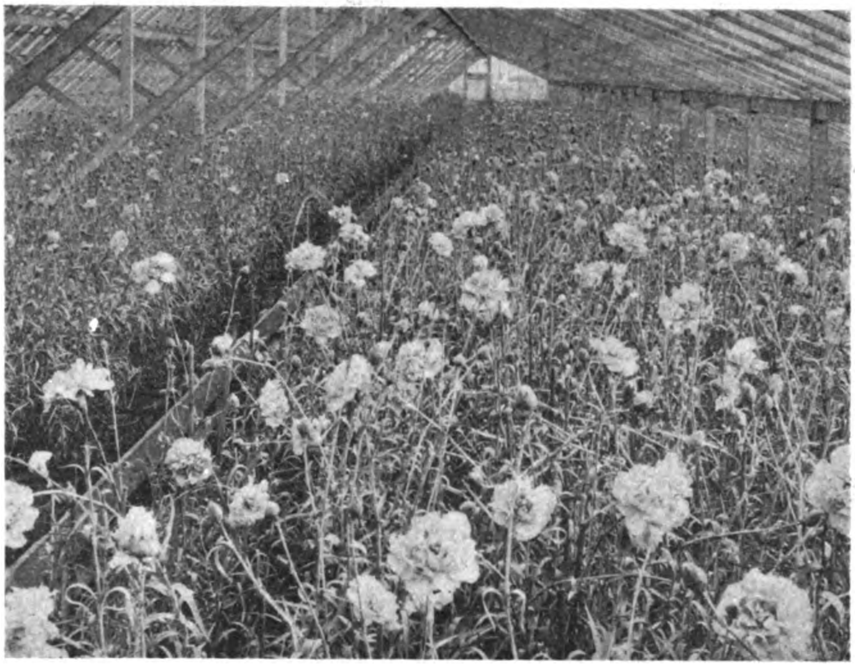


FIG. 51. HOUSE OF CARNATION EILEEN LOW AT BUSH HILL PARK NURSERY.

Cyclamen in their tens of thousands are cultivated especially for market, and numbers of large greenhouses are devoted to this subject alone, while Palms, represented mainly by Kentia Fosteriana, K. Belmoreana, and Phoenix Roebelinii, are to be seen at Bush Hill in all stages of growth, from tiny plants to very large specimens. Some idea of the extensiveness of this department alone may be realised when we state that nearly 100,000 Palms are grown, and it is a difficult matter to cope with the ever increasing demand. Ferns are a very popular market line and Aspidistras, Genista fragrans, Hydrangeas, fibrous-rooted and winter-flowering Begonias, pyramid and standard Bay trees are grown and reared in vast quantities.

Many houses are devoted to perpetual-flowering Carnations, and although the nurseries are situated within so short a distance from London the plants are nevertheless the picture of health and a credit to the firm. Scarlet-flowered varieties, owing to the dull weather and fogs, undergo a severe test in winter, and many a good variety of this colour has had to be condemned owing to the pigment fading and turning slaty in dull weather. The new varieties Lord Lambourne and Brilliant, both stand the test exceptionally well, and Aviator, although by do means a new variety, is still considered one of the best scarlet sorts for winter-flowering. Of salmon-pink varieties there were an abundance, but pride of place was given to the variety Eileen Low (see Fig. 51). The plants, even where they had been raised from late cuttings, were full of blooms, and the growth was sturdy and of sufficient strength to hold the large flower erect. The colour is a rich warm shade of salmon-pink, the texture of the petals of good substance, and the form of the flower bold and full. Hon. Nita Weir is another excellent salmon-pink variety, a trifle lighter in colour than the foregoing, with well expanded broad petals, while Lord Inverforth stands unrivalled for size of bloom and richness of colour. Of crimson shades Topsy and Sir Edward Mackay Edgar, two recent introductions, carried a wealth of blooms and are a decided improvement on the older British Triumph and Carola, while the large stock of White Pearl was most pleasing, not only on account of its free-flowering habit, splendid growth and constitution, but also because of its additional quality of perfume. Many other varieties are grown, and the firm also excels in the cultivation of perpetual-flowering Malmaisons. The house devoted to seedlings proved of great interest, and although numbers have to be discarded as showing no improvement on existing forms there were some which showed great promise and will doubtless be distributed after they have been thoroughly tested.

Messrs. Stuart Low and Co. not only interest themselves in greenhouse foliage and flowering plants and Orchids, but also devote large areas to the cultivation of vines and Figs, Peaches, etc., under glass, as well as to Roses and hardy fruits, and have other nurseries at Jarvisbrook, Sussex, and Benenden, Kent.

SOCIETIES.

ROYAL HORTICULTURAL.

February 26. A very bright and spring-like exhibition was provided on this date, and notwithstanding the bitter weather of the early morning and previous day the Royal Horticultural Hall was well filled. Forced Hyacinths, Tulips and Daffodils were prominent, and the fine exhibit of these flowers secured a Gold Medal. Hardy plants were shown in great variety; there were a few exhibits of Orchids, several of Carnations, and others of Camellias and forced shrubs.

Orchid Committee.

Present: Sir J. Colman, Bt. (in the chair), Messrs. Gurney Wilson (Hon. Sec.), J. Wilson Potter, R. A. Thwaites. E. R. Ashton, T. Armstrong, J. C. Cowan, A. McBean, J. E. Shill, H. G. Alexander, H. H. Smith, A. Dye, F. K. Sander, H. T. Pitt, S. W. Flory, R. Brooman White, Stuart H. Low and Sir John Rutherford.

First Class Certificate.

Miltonia William Pitt var. Rosslyn (*M. Isobel Sander* × *M. Bleuana var. Reine Elizabeth*).—This is probably the most richly coloured Miltonia yet seen. The flowers are of good size and the big labellum has a rather deep notch in front. The colouring is intense ruby with crimson-purple shading, and this is seen practically all over the flower, although it pales at the bases of the petals and to almost white at the base of the sepals. The base of the lip has a yellow mask and its radiating lines are margined with white, while a few white spots occur beyond the mask. In the centre of the mask there are two or three brown lines. A magnificent new Orchid. Shown by H. T. Pitt, Esq., Rosslyn, Stamford Hill.

Awards of Merit.

Odontioda Purple Emperor (*O. Armstrongi var. Peerless* × *O. Coronation*).—A distinctly coloured Odontioda of rich ruby-crimson colouring, with a border of deep dark purple around the sepals and petals. The lip is pale rose-purple with crimson markings and finely sets off the bright yellow crest. Shown by Messrs. Armstrong and Brown.

Odontoglossum Leander (parentage unknown).—This fine hybrid has flowers of the largest size and of capital form. The colour is bright rose-purple with curiously curved and flaky markings of deep blush and a fringed margin of this paler colour. The lip has a prominent yellow crest. Shown by R. Gerrish, Esq. (gr. Mr. Lovell), Milford Manor, Salisbury.

Groups.

J. J. Bolton, Esq., (gr. Mr. Lyne) Claygate Lodge, Claygate, Surrey, showed ten splendidly grown plants of Odontoglossums and Odontiodas, and these formed a small group which was greatly admired by lovers of high culture and fine varieties. Odontioda Royal Scot had purple blotched flowers as large as those of a big Odontoglossum, while O. Brackenhurst had intense crimson-purple flowers of large size, and the brilliant O. Coligne var., Rosemary, had eleven magnificent blooms. Odontoglossum eximium, var. Daphne, carried a grand spike of fourteen flowers, while O. L'aiglon, var. majesticum, also carried fourteen richly-hued blooms, and a blotched form of O. crispum had a spike of sixteen flowers. O. Rosina, O. ardentissimum and the handsome O. a., var. Robsoniae were other fine things (Silver-Gilt Banksian Medal).

Messrs. Cowan and Co.'s group included the bright Odontioda Borta (C. Noezliana × O. Nathaniel), the fine Laelio-Cattleya Hassallii alba; Brasso-Cattleya British Queen, the superb Cattleya Tityus var. Imperator, Dendrobium atroviolaceum, D. Melpomene and a fine plant of Miltonia Bleuana with two spikes of six blooms each, and two other spikes with four and five unopened buds respectively (Silver Banksian Medal).

A very pretty group of Orchids was arranged by E. R. Ashworth, Esq., Broadlands, Tunbridge Wells; this was a capital exhibit, and the well-grown plants were displayed over sheets of moss. The more notable plants were those of Odontioda Joan, the two varieties showing a wonderful divergence of form and colour; Dendrobium chessingtonense, smothered in golden flowers; Brasso-Cattleya Enid roseum, Odontioda keighleyense. Odontoglossum Bronlei var. Bronzewing, the very fine O. Ashtoni with ten very fine flowers; Odontioda Lady Patricia Ramsey, and a fine example of Laelio-Cattleya Schröderae (Silver-Gilt Banksian Medal).

The small group exhibited by Messrs. Sanders contained the very interesting and pretty Laelio-Cattleya Octavia, one of the Laelia anceps crosses; Cattleya Fred. Sander, with white, yellow-throated flowers of great beauty; Brasso-Cattleya Pallas, Odontioda Majestic, prettily marked with red-brown on a white ground; Oncidium Forbesii, and the interesting old Odontoglossum naevium (Bronze Banksian Medal).

Messrs. Stuart Low and Co. showed Arpophyllum giganteum with a pair of its erect spikes; Miltonia Bleuana aurea in variety; Sophro-Cattleya Atreus var. gloriosa, rich cinnamon-red; Platyclinis glumacea, Laelio-Cattleya luminosa, Potinara Lowii and several Odontiodas and Odontoglossums (Silver Banksian Medal).

Floral Committee..

Section A.—*Present*: Messrs. H. B. May (in the chair), J. F. McLeod, D. Allan, J. M. Bridgeford, A. Turner, H. J. Jones, W H. Page, Andrew Ireland, M. C. Allwood, E. R. Janes, W. B. Gingell, W. Stephens, D. B. Crane, Chas. E. Pearson, G. W. Leak and W. D. Cartwright (Sec.).

Section B.—*Present*: Mr. G. W. Loder (in the chair), Sir W. Lawrence and Messrs W. J. Bean, James Hudson, G. Reuthe, G. Harrow, C. Williams, R. D. Trotter, A. Bedford, F. G. Preston, T. Hay, G. Yeld, C. Elliott, Reginald Cory, W. R. Cranfield and E. A. Bowles.

Awards of Merit.

Canarina campanulata.—An old garden plant popularly known as the Canary Bellflower. It is a native of the Canary Isles. The drooping, bell-shaped flowers are of bronze yellow colour, flushed with purple and are borne singly at the ends of the branches. The plant is not hardy in this country and requires the protection of a cold greenhouse. The stems die down in the summer, the new growths being produced in the winter from the large, fleshy, tuberous root stock. C. Campanula and C. laevigata are synonyms of this plant. Shown by Col. Messel, Nymans, Handcross.

Lachenalia Siam.—A very pretty Cape Cowslip with bright green foliage and long pale yellow flowers, the inner segments of which are tipped with green. The stamens slightly protrude from the tubular perianth, and the bracts are coloured rose purple.

Lachenalia Rutland.—A charming plant, the flowers of which are a brilliant salmon scarlet colour in their undeveloped state, changing as the flower opens to bright yellow. The inner segments of the perianth are edged with a zone of deep bronze-purple, and the flower stems are marked with reddish purple spots.

Freesia Flame.—A variety with well-shaped, large, tubular flowers, measuring about one-and-a-half inch across. The colour is bright yellow, the lower segments of the perianth being marked with vivid orange blotches and with a few clearly defined brown lines. The three foregoing novelties were shown by Rev. J. Jacob, Whitewell Rectory, Whitchurch, Salop.

Iris Little Boy Blue.—A noteworthy seedling of the Iris Cantab type, with flowers of a clear, deep blue colour. The height of the plant is about six inches. The outer segments each have a handsome, clear deep yellow crest, shaded with white at the base and faintly spotted with a few minute black dots. Shown by Messrs. Herbert Chapman, Ltd., Rotherside Gardens, Rye, Sussex.

Groups.

Messrs. Stuart Low and Co. showed Carnations which embraced several varieties raised at Bush Hill Park, including Hon. Nita Weir, Lady Inverforth, and Eileen Low, all good salmon-pink varieties, and Sheila Greer, orange ground marked with scarlet; Reginald Cory, cerise scarlet; and Arnos Grove, heliotrope. Adjoining the Carnations were varieties of Hippeastrums, Boronia megastigma, Olearia ramulosa, Camellias, Rogiera cordata and other greenhouse plants (Silver Banksian Medal).

Mr. C. Engelmann arranged a pretty group of Carnations and included Laddie, salmon pink; Saffron, yellow; Donald, crimson; White Enchantress, and Goliath, a large deep pink flower (Silver Banksian Medal). An excellent display of Carnations was also staged by Messrs. Allwood Bros., prominence being given to Maine Sunshine, yellow; George Allwood, salmon-pink; Laddie, salmon-pink: Coral Glow, deep apricot; Edward Allwood, scarlet; Topy, crimson, and White Enchantress. (Silver-Gilt Banksian Medal).

Messrs. R. and G. Cuthbert showed a very bright collection of well flowered forced Azalea mollis × A. sinensis seedlings, and edged the exhibit with pots of Hyacinths (Silver Banksian Medal). From Messrs. L. R. Russell, Ltd., came a picturesque group in which Camellia cuspidata, white with bright yellow stamens; Clematis indivisa lobata, white, and Prunus sinensis alba flore plena figured conspicuously together with forced Azaleas, Wistaria sinensis, Anoectochilus discolor and other interesting plants (Silver Banksian Medal).

Forced Roses were shown by Mr. George Prince who made a feature of Yellow Banksian, the climbing variety Fortune's Yellow, pale salmon; Golden Ophelia, Hoosier Beauty, red, and Columbia, a large rose-pink flower (Bronze Banksian Medal). Mr Elisha J. Hicks also contributed a very pretty group and showed a number of epergnes of Climbing Lady Hillingdon, Padre, coppery scarlet, and the Polyantha varieties Lady Reading, a sport from Ellen Poulsen, possessing large flowers of deep rose colour, and Glory of Hurst, a dainty flower of brilliant cherry red colour (Silver Banksian Medal).

Messrs. Cragg, Harrison & Cragg again showed their Covent Garden strain of Cinerarias in pink and blue colours, the plants being of excellent habit and the heads of bloom very large (Bronze Banksian Medal). Camellias were staged by Messrs. Wm. Paul, Ltd. and included Princess Charlotte, a good white flower; Baron de Voriere, rose-pink; Princess Bacchoici, scarlet, and Jupiter a single scarlet flower with a prominent cluster of yellow stamens (Bronze Banksian Medal)

There were many exhibits of hardy flowers, and Messrs. R. Wallace & Co., Ltd. staged Primula Lingwood Beauty, Anchusa myosotidiflora and Tulipa Kaufmanniana backed up with shrubs including Ilex Pernyi, Erica Veitchii, Berberis japonica and numerous Conifers suitable for the rock garden (Bronze Banksian Medal). Messrs. Waterer, Sons & Crisp, Ltd. showed seasonable hardy flowers including large batches of Erica mediterranea hybrida, Iris orchioides, yellow; Anemone blanda scythinica, pale blue and white; and the rare Tulipa praestans, a native of Bokhara with orange-red flowers and a yellow base (Silver Banksian Medal).

From Messrs. J. Cheal and Sons, Ltd., came a collection of hardy flowers such as

Saxifraga oppositifolia alba, Primula rosea, and Pulmonaria azurea (Bronze Banksian Medal), while Messrs. Maurice Prichard and Sons showed Saxifragas in variety, including the hybrids H. Marshall and Gem, each with pale blush flowers.

Mr. F. G. Wood planted a well-arranged rock garden with the double Primula lilacina, Sedum Palmeri, Pulmonaria rubra and a selection of rock garden shrubs (Bronze Banksian Medal), and Messrs. Skelton and Kirby were also the exhibitors of a rock garden planted with many species in bloom backed by profusely flowered specimens of Forsythia vitellina (Bronze Banksian Medal.

A very charming rock garden exhibit was staged by Messrs. W. Cutbush & Son, neatly arranged with Alpines and hardy flowers and shrubs. Great splashes of colour were provided by masses of Azalea Hexe, A. Kaempferi, and A. Hinomanyo; other interesting plants were Daphne Cneorum majus, Menziesia empetriformis, Iris bucharica and Saxifragas and Crocuses in variety (Bronze Banksian Medal).

A collection of hardy evergreen shrubs and Conifers was shown by the Orpington Nursery Co., and included in the exhibit were some fine specimens of Olearia Forsteri, Corokea virgata, Griselinia variegata, Osmanthus Delavayi, and Viburnum Henryi.

Mr. G. Reuthe displayed the rare Galanthus cilicicus, Cyclamen Coum, Berberis japonica hyemalis which differs from B. j. Bealii both in foliage and the production of longer racemes of flowers, Rhododendron eximeum with pink flowers, which was discovered by Booth in Bhutan in 1853, and R. lutescens, with yellow flowers (Bronze Banksian Medal).

Large drifts of Erica carnea, E. c. alba, and E. hybrida Darleyense were the features of the exhibit from Messrs. Maxwell and Beale, who also showed good specimens of Soldanella alpina and Gazania splendens.

Messrs. R. Tucker and Sons showed an excellent collection of Saxifrages as well as a pink form of Anemone Pulsatilla named Madame van d'Elst (Silver Banksian Medal). Primula The Jewel, a pretty hybrid raised from P. Juliae as one of the parents and possessing bright rose-purple flowers, was shown in quantity by Messrs. R. Gill and Sons, the group being backed with large Arums and Erica Veitchii (Bronze Banksian Medal).

The highly fragrant Viburnum Carlesii and V. buddleifolia, a Chinese species with white flowers, were a very attractive feature of the exhibit from Messrs. Baker and Co., and a collection of miscellaneous hardy and bulbous flowers was shown by Messrs. Barr and Sons, including a fine selection of Narcissi, Crocuses, Irises, and Saxifragas (Silver Banksian Medal). Polyanthuses and Primroses were displayed in great variety of colour by Mr. G. Miller (Silver Banksian Medal).

Messrs. Carter Page and Co., contributed bold masses of Cyclamen Atkinsii album, Saxifraga burseriana Gloria, S. Irvingii, and Iris reticulata, and arranged flowering shrubs, such as Rhododendron praecox, Pieris japonica, and P. floribunda at the back of the group (Silver Banksian Medal). The Misses Hopkins also showed a rock garden planted with an assortment of hardy flowers and Mr. P. Pinney contributed a collection of Violets.

Narcissus and Tulip Committee.

Present: Messrs. E. A. Bowles (in the chair), G. W. Leak, Geo. Monro, J. Jacob, F. H. Chapman, Reginald Cory, Charles H. Curtis, W. B. Cranfield, Herbert Smith, G. Churcher, J. W. Jones, E. Titchmarsh, J. de Graaf, C. W. Needham, P. R. Barr and W. Poupart.

A very imposing group of forced Daffodils and Tulips growing in bowls of fibre was shown by Messrs. R. H. Bath, Ltd. The great wealth of flowers was well arranged with regard to colour effect and the quality of the blooms was exceptionally fine. Among the Trumpet Daffodils prominence was given to King Alfred, one of the finest yellow varieties Olympia, a large bloom but rather coarse in form; Weardale Perfection, with cream perianth and pale yellow coloured trumpet; W. T. Ware, a dainty bicolor, and the popular varieties Empress and Madame Plemp. Yellow poetaz varieties were represented by Jaune à Merveille and Klondyke, while among white varieties Sycamore and Elvira were noted. Of Tulips there were excellent bowls of Pelican, white; La Grandeur and Vermilion Brilliant, scarlet; McKinley, rose cerise; Duchesse de Parma, a variety somewhat resembling Keizerkroon; Rose Luisante, rose shading to white at the base; Ibis, deep rose; Mon Tresor, King of the Yellows and Yellow Prince, three good yellow varieties, and Van der Neer, violet. Hyacinths, Fritillaria Meleagris and the white Crocus Kathleen Parlow, were also included in the group (Gold Medal).

Messrs. H. Chapman, Ltd., showed the dainty Iris Cantab, Daffodil Surprise, a hybrid between Will Scarlet and N. cyclamineus, and a giant Leedsi variety named Calirrhöe. The Rev. J. Jacob, Whitewell Rectory, Whitchurch, Salop, showed some very fine seedling Freesias and Lachenalias.

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (chairman), W. Poupart, J. Cheal, H. S. Rivers, A. H. Pearson, Geo. F. Tinley, S. B. Dicks, W. F. Giles, F. Jordan, A. Metcalfe, T. Pateman, A. Bullock, H. Markham, E. Harriss, E. Beckett, A. C. Smith, E. Neal, Geo. Kelf, H. Prince, W. H. Divers, H. V. Taylor, E. Bunyard, Fred. G. Treseder, and A. N. Rawes.

Messrs. Sutton and Sons contributed an excellent exhibit of vegetables for which a Silver-gilt Knightian Medal was awarded. The various subjects were arranged in an attractive manner, and the use of a black velvet ground served to throw the vegetables into strong relief. The general quality of the produce was excellent and forced heads of Seakale were superb. There was also some splendid Rhubarb of the Sutton variety. Other vegetables of interest and merit were Golden Ball Lettuces, Superb Early White Brocoli, Student Parsnips, Sutton's Favourite Carrot, Globe Leeks and Onions Ailsa Craig, Rousham Park Hero and Perfection. In addition to these there were Cucumbers, Mustard and Cress, Mushrooms, Potatos, Celeriac, Chicory, Scorzonera and several other kinds.

Messrs. G. Bunyard and Co. displayed their usual exhibit of select varieties of Apples in season, and on this occasion they included Heusgen's Golden Reinette, King of Tompkin's County, Sturmer Pippin, Cornish Aromatic, Sir John Thornycroft, Sanspareil, Crawley Reinette, Mabbott's Pearmain, Allen's Everlasting, and Rhode Island Greening.

Messrs. Shearn, Tottenham Court Road, W., displayed an unusually good exhibit of imported fruits, and it was the general opinion that the collection was the best of its kind that had been displayed in the Hall for very many years. The various fruits were arranged in fancy baskets and the whole exhibit was a feature of the exhibition. The principal subjects were Gold Mine Nectarines, Pucelle Peaches, Apple Plums, Black Currants that had been preserved in cold storage, William's Bon Chrétien Pears, St. Michael Pines, Cuban Grape fruits, Custard Apples, Mangos, Oranges, Pecan Nuts and Californian Walnuts (Bronze Hogg Medal).

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this Society was held in the R.H.S. Hall on Monday, Feb. 11th, Mr. Charles H. Curtis, presiding. Nine new members were elected.

Two members over the age of seventy years withdrew the sum of £60 3s. 8d. from their deposit accounts. and the sum of £28 18s. 2d. plus £10 funeral benefit was passed for payment to the nominee of a deceased member. The sick pay for the month on the private side came to £96 9s. and on the State side to £86 12s. Grants amounting to £15 12s. were made from the State Section to four members for dental treatment, and £1 13s. to two members for optical treatment; three other cases were also considered. The trustees reported that they had invested a further sum of £1,000, and instructions were given to invest a further £1,000.

The arrangements for the Annual Meeting were made, also for the proposed alteration of Rules to allow new members to become eligible for benefits after six months, and that the sum of £20 be paid in future in case of death in Scales X and A; £15 in B; and £10 in Scales C and D.

ROYAL CALEDONIAN HORTICULTURAL.

The first ordinary monthly meeting of this Society for the current session was held at 5, St. Andrew Square, Edinburgh, on February 7th, Mr. Robert Fife, President, in the chair.

Mr. Fife delivered his inaugural address, taking as his subject, "Reminiscences of the Nursery Trade and Gardening Industry," and contrasted the methods of cultivation of flowers and vegetables in his early days with those of the present time.

The exhibits were:—Snowdrops, from Mr. P. Murray Thomson, Bridge Sollers, Herefordshire, and flowering shrubs from Corswall Gardens, Wigtownshire.

READING AND DISTRICT GARDENERS.

There was a large attendance of the members of this association at the fortnightly meeting held on Monday, the 11th ult. The subject for discussion was Chrysanthemums, and it was introduced by Mr. A. W. Smith, The Gardens, Sherfield Manor, Basingstoke. In his opening remarks he referred briefly to the early history of the flower, and stated that the first Chrysanthemum show in England was held in Norwich in 1840. Full details were given of the cultivation of the plant.

The exhibits were Amaryllis, by Mr. H. Wade, Abbotsfield Gardens, Goring Heath (Award of Merit); four dishes of Apples of fine colour and in excellent condition by Mr. A. Webb, Tilehurst, and a vase of blooms of Iris unguicularis by Mr. F. Alexander, Kennets Lodge Gardens, Theale. Three new members were elected.

NORFOLK AND NORWICH HORTICULTURAL.

The annual meeting of this society (which has been established nearly 100 years) was held in the Oak Room of the Guildhall, Norwich, on February 16th. Captain J. H. Mander presided. The annual report, prepared by the Secretary, recorded that the Spring Show which, owing to shortage of funds, had been suspended for two years, would be revived again this year as a three day show in St. Andrew's Hall, Norwich, on April 24th, 25th, and 26th. During the past year over 100 members were enrolled, bringing the membership to 480. The financial statement showed that the society has a balance of over £100 on the credit side.

Captain Mander was elected president, and Sir Bartle Frere vice-president. Captain A. Sandys-Winoch was re-elected secretary.

It was decided to hold the Summer Show this year on July 3rd in the grounds of Carrow Abbey, Norwich, the residence of the Lord Mayor.

GARDENING APPOINTMENTS.

Mr. Robert Clanfield, previously Gardener to the late Colonel W. A. St. Clair, Beacon, Dormansland Surrey, as Gardener to Sir Westby Perceval, Southdown, The Downs, Wimbledon. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.).

Mr. G. C. Wareham, previously Gardener-steward at Holmbury House, Dorking, Surrey, as farm, garden, and estate steward to Sir James Stevenson, Bt., G.C.M.G., at the same place. (Thanks for 2s. 6d. for R.C.O.F. Box.—Eds.)

Obituary.

William Bowell.—We regret to record the death of Mr. William Bowell, which occurred on February 18. Mr. Bowell, who had reached the advanced age of eighty-five years, was born at Needham Market, Suffolk, and was first employed in the gardens of Shrublands, an estate at that time maintained in magnificent style by Sir William Middleton. In the early sixties Mr. Bowell entered the gardens at Claremont, Esher, and a little later was appointed gardener to Sir Henry Parker, at Stawell House, Richmond, Surrey, where he remained until 1890. In the latter year he became gardener at Shiplake Court, Oxfordshire, but not long after he removed to Hampton, in Middlesex, where he established himself in business as a market nurseryman. For a man of his advanced years Mr. Bowell was wonderfully active and energetic and was fully engaged in his business up to within a week of his death. Mr. Bowell was one of the founders of the Richmond Horticultural Society, and served on its Committee for many years, consequently owing to his long residence at Richmond and Hampton he was well known to horticulturists in the Thames Valley, and his death will be regretted by a very wide circle of gardening friends. His son, Mr. H. S. Bowell, is secretary of the Hampton and District Nursery-Workers Club.

Harry G. Eyres.—The American horticultural journals record the death of Harry G. Eyres, florist of Albany, New York. Mr. Eyres was a native of Bemerton, Salisbury. Whilst engaged in Messrs. James Veitch and Sons' Nursery, Chelsea, he was selected by the firm to fill an appointment as Orchid grower at Kenwood, near Albany, U.S.A., in 1881. At that time his employer, Mr. Corning, had the finest collection of Orchids in the United States. After a time Mr. Eyres entered into business, with two friends as partners, and established the firm of Eyres and Golding. Eventually the Golding brothers withdrew from the enterprise and Mr. Eyres conducted the business alone, and it is stated that he enjoyed practically seventy-five per cent. of the floral trade of Albany. Mr. Eyres is survived by his widow, two daughters and a son.

Mr. Charles Kitching.—It is with deep regret we record the death of Mr. Charles Kitching, of Queens Road, Spalding, who passed away, after a sudden illness, on the 13th ult. Mr. Kitching was one of the pioneers of the bulb growing industry in Lincolnshire, and commenced as a young man, by investing his savings of a few shillings in a mere handful of Narcissus bulbs. From this small beginning he built up stocks of many acres of Tulips and Daffodils, and his bulb-farm had the deserved reputation of being one of the best kept in the district. His quiet, unassuming manner and kindly disposition endeared him to all, and his passing will be keenly felt by a wide circle of friends. He leaves a widow, one daughter and two sons.

William Noble.—The eastern counties have lost a notably successful gardener by the death of Mr. William Noble, who passed away recently after a somewhat lengthy illness. Mr. Noble had been gardener for eighteen years to Sir George and Lady Agnew, at Rougham Hall, Bury St. Edmunds, and during that period had shown great taste and skill in the maintenance of the extensive gardens under his charge. As a prominent member of the Bury St. Edmunds Horticultural Society, Mr. Noble was widely known to horticulturists throughout the district. The funeral took place at St. Mary's Church Rougham, and in addition to members of the family, it was attended by Sir George and Lady Agnew, members of the Church of which Mr. Noble was Church Warden, and representatives of the several local associations in which he was interested. The floral tributes of affection were unusually numerous and beautiful.

Alexander Schenk—We greatly regret to record the death, on the 11th February, of Herr Alexander Schenk, the curator of the botanic gardens in Berne, Switzerland. He was one of the best known horticulturists in Switzerland, and was President of the Berne Horticultural Society. As President also of the German-Swiss Garden Union he was able to render valuable services to the German horticulturists during the difficult war and post-war years, supplying their botanic gardens with rare plants which would otherwise have been unobtainable. His death was due to congestion of the lungs; he was still comparatively young, being in his sixty-first year.

TRADE NOTES.

OWING to the death of Mr. A. M. Burnie, late co-director with Mr. W. Cuthbertson and Mr. R. Fife, of Messrs. Dobbie and Co., Ltd., it has been decided to add Mr. David C. Cuthbertson and Mr. William Fife to the directorship. Mr. John Fife has also been appointed assistant secretary to the Company.

A NEW Rose has been submitted for registration by the International Bureau of Registration of Horticultural Novelties. It is named Roi Albert, and was raised by M. Jean Klettenberg-Londes, Chausse d'Alsemberg, Brussels. It is described as a fragrant, hybrid Tea Rose of vigorous growth, with normal foliage and long buds that open into very large and full blooms. The colour is soft rosy carmine with a silvery shade, the centre being set off by a tint of vermilion. The variety received a Certificate of Merit and Gold Medal at Brussels in 1923, and is being grown in the trials at Bagatelle. It will be put into commerce in the autumn of 1925.

ANOTHER hybrid Tea Rose from the same raiser is named Princesses Marie-Jose. This is described as of vigorous growth with abundant foliage, long buds which open well; flowers large and full, coloured orange-vermilion on cadmium-yellow, the centre deepening in shade. This variety, which obtained a Certificate of Merit and Gold Medal at Brussels in 1923, is being grown in the trials at Bagatelle, and will be put into commerce in the autumn of 1924, by Messrs. E. Turbat and Co., Route d'Olivet, Orleans (Loiret), France.

MESSRS. HÖNTSCH AND CO., makers of greenhouse and other boilers, have a large business and their works, near Dresden, cover several acres of ground; one building alone, the central one, occupies 50,000 square feet, and is three stories high. There are other works, notably in Czecho-Slovakia and Yugo-Slavia, and branches in every city of importance on the Continent. It is calculated that there are now, at least, 10,000 of this firms' boilers in use, and their success is apparently due in the main to two facts: that the Höntsch boilers will burn any kind of fuel, and are simple and easy to assemble. Although such a large measure of popularity has been attained, the firm is by no means satisfied to rest on its oars, and is always experimenting and improving. One of the members of the firm, Mr. Walter Höntsch, is a qualified civil engineer, and professor of heating methods at the College of Horticulture at Pillnitz, near Dresden.

CATALOGUES RECEIVED.

Seeds.

MCHATTIE AND CO., Chester.

DICKSON AND ROBINSON, Manchester.

STORRIE AND STORRIE, Glencarse, Perthshire.

D. AND W. CROLL, 63, Commercial Street, Dundee.

ARTHUR CHARLTON AND SONS, Tunbridge Wells.—Sundries.

BARR AND SONS, King Street, W.C. 2.—Lawn Grass Seeds.

ANSWERS TO CORRESPONDENCE.

CORRECTION.—We regret that a clerical error appeared in the article on "Principles of Nomenclature," p. 93. Instead of "Dumortier soon reduced Kickxia to Linaria" it should read "Kickxia, Dumortier, was soon reduced to Linaria." It was not Dumortier but other botanists who reduced his genus Kickxia.

GARDENER'S NOTICE: *Gardener.* The length of notice to which you are entitled is entirely a question of custom, in the absence of any special agreement on the point. The fact that you are paid fortnightly is only one of the factors which would be taken into account, and is not necessarily conclusive. If you are a head-gardener you would be entitled to receive or give a month's notice, but if you are an under-gardener a week's notice would be usual in most districts.

GARDENER'S REFERENCE: *W. R. J. S.* You cannot insist upon a reference, but if one is given it must be an honest one. On applying for a new situation, the only course open to you will be to explain why no reference is forthcoming and to suggest that your proposed employer should write direct to your late employer.

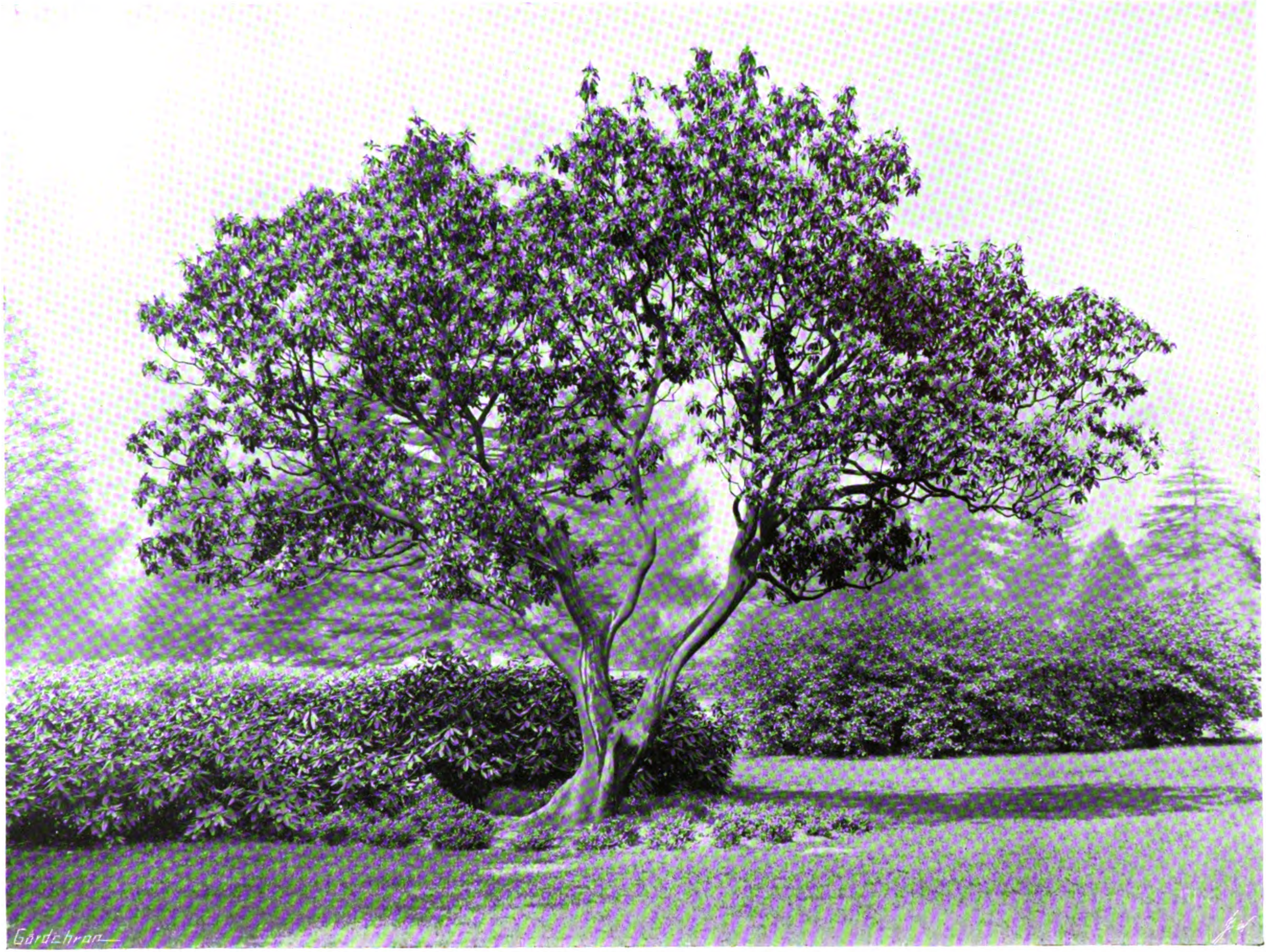
MUSHROOMS: *R. H.* The Mushrooms are attacked by springtails (Aschorutes rufescens) and the best remedy is to spray the beds with a solution of Woburn tobacco extract used at the rate of one part of extract to eighty parts of water. This solution will not injure the Mushrooms and care should be taken that every part of the Mushroom-bed is damped over. Two applications should be given, allowing an interval of one week, and should be applied after all Mushrooms fit for use are cut.

NAMES OF PLANTS: *J. M.* 1, Libocedrus decurrens; 2, Cupressus Lawsoniana; 3. C. L. var. ochroleuca; 4, Juniperus chinensis; 5, Cupressus obtusa var. aurea: 6, Sequoia gigantea.—*E. S.* 1, Photinia Benthamiana; 2, Forsythia suspensa.—*J. C.* The Cypripedium is Monsieur de Curte (Boxallii × insigne). The plant used for packing is Helxine Soleirolii.—*T. B.* 1, Saxifraga burseriana: 2. S. Boydii; 3. S. lilacina.—*J. A.* 1, Adonis autumnalis; 2, Anemone hortensis.—*F.R.H.S., Brighton.* Pieris (Andromeda) floribunda:—*S. C.* Vitis rhomboidea.—*O.G.O.* 1. Send when in flower; 2. Isoloma hirsutum: 3. Epiphyllum truncatum; 4, Anthericum variegatum; 5, Monstera deliciosa.—*Constant Reader.* Petasites fragrans.

OLD-FASHIONED SWEET PEAS: *E. B.* Seeds of the old and very fragrant varieties of Sweet Peas may, we believe, still be obtained through most of the specialists who advertise in our columns.

REMOVAL OF PLANTS AND NOTICE TO QUIT HOUSE: *Twenty-five Years' Subscriber.* If, with your landlord's knowledge and consent, you have been using the premises as nursery grounds, you would be entitled to remove your growing stock. If, however, the land is used as a Market Garden, and not as nursery ground, you would not be entitled to remove the stock, but would be entitled to compensation in respect of certain matters; and if the premises are sufficiently small to come under the Allotments and Cottage Gardens Compensation Act you would have certain special statutory rights. You should consult a solicitor on these points and also obtain his advice as to whether you can be compelled to give up possession in view of the Rent Restriction Acts, if you do not wish to leave.

Communications Received.—J. W., Belgium.—W. A.—W. A.—Constant Reader.—F. J.—H. S.—J. G. B.—W. J. B.—G. M. T.



ARBUTUS MENZIESII IN THE ROYAL BOTANIC GARDENS, KEW.

THE
Gardeners' Chronicle
No. 1941—*SATURDAY, MARCH* 8, 1924.

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Arbutus Menziesii at Kew.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 42·1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 5. 10 a.m.: Bar, 30°; temp. 43° Weather—Cold and bright.

Chelsea Show, 1924.

THE schedule of the Chelsea Show—which will be held on May 27, 28, and 29—issued by the Royal Horticultural Society, differs materially from schedules received from other societies. It is, in fact, a schedule of regulations and not one of classes and prizes offered. There are no fewer than fifty-four regulations and, as many of these differ from those previously issued, intending exhibitors should lose no time in applying for a schedule and making themselves fully acquainted with the regulations contained therein. This is particularly necessary, as space at Chelsea is severely limited and entries must be made not later than March 22. All applications for space will be subject to acceptance by the Council and applicants are expected to abide loyally by its decision, which will be given in April. As is usual, the Council reserves the absolute right to refuse any application for space, and in the event of a refusal is not to be required to give any reason or explanation therefor. In 1923, the maximum amount of space allotted to any one exhibitor inside the tents was one thousand square feet, but it is doubtful whether anyone will obtain a similar area this year. That the Council anticipates a big demand for space is shown by the statement that no pictures, plans, or drawings may be exhibited except in the sundries avenue. No awards will be made to sundries on this occasion as the Council is of opinion "they are valueless without practical tests in a garden." The regulation that a deposit of £1 must accompany each entry in each section or class, or for each distinct space, is a reasonable one, and imposes no hardship, as the deposit will be returned if the exhibitor fulfils his entry to the satisfaction of the Council and clears away his exhibit within forty-eight hours of the close of the show. Certain regulations are in the nature of requests with a view to the better arrangement of exhibits. For instance, we read that "all exhibits, and especially bunches of cut flowers should be much less crowded than they usually are and arranged in as natural a condition as possible," and that "Carnations or Violas should not be shown with paper collars." It is of interest to observe that Leeks and Onions are excluded from exhibits of vegetables, possibly owing to their odour, but it seems to be an unnecessary exclusion, as we have rarely found these vegetables offensive even when exhibited in large numbers under canvas. Exhibitors cards have always presented some difficulty at exhibitions, and at the Chelsea Show these will be limited in size to eighty-four square inches. Exhibitors are advised to ensure their exhibits against loss by fire or theft and they must hold themselves responsible for any claims made by persons in their employ. This, of course, is good advice, but it should not exempt the Council from taking every reasonable precaution to safeguard exhibits and exhibitors. In making awards to the various exhibits the Council will be guided by a scheme of points as follows:—Orchid groups: (1) cultivation and quality, 40; (2) rarity and variety, 30; (3) general arrangement. 30; total, 100 points. Plants and flowers other than Orchids: (1), 40; (2), 35; (3), 25; total, 100 points. Fruits and vegetables: (1) quality, condition and cultivation, 65; (2) variety, 25; (3) general arrangement, 10; total, 100 points. Rock gardens: (1) design, 50; (2) execution, 25; (3) plants, 25; total, 100 points. Formal gardens: (1), 60; (2), 20; (3), 20; total, 100 points. A special section of the show will be devoted to the scientific and technical side of horticulture, and members of the Society's staff at Wisley will be in attendance at the scientific tent to assist Fellows in any difficulties that may have arisen in their gardens. We are glad to notice that special attention is drawn to the cheap tickets of admission, which may be obtained by *bona fide* gardeners who belong to societies affiliated to the Royal Horticultural Society. All visitors to the Chelsea Show will be delighted to know that at the forthcoming exhibition the Royal Artillery Band will play in the Ranelagh Gardens from 3 p.m. to 7 p.m. on Tuesday and Wednesday, and from 2 p.m. to 6 p.m. on the Thursday. The challenge cups offered for award at Chelsea this year are the Sherwood Memorial Cup for the most meritorious group; the Daily Graphic Cup for the best rock garden; the Cain Cup for the best exhibit by an amateur; and the Orchid Challenge Cup for the best amateur's exhibit on a space not exceeding sixty square feet, but in regard to the award of these cups the Council may reserve its decision until the third day of the show. Messrs. Allwood Bros. are also offering a special bowl for the best amateur exhibit of Carnations, and Messrs. Sutton and Sons a silver cup for the best amateur exhibit of vegetables.

Black Spot on Roses.—In an article entitled "A New Method of Controlling Black Spot," which appeared in "*The Florists' Exchange*" for February 16, Mr. U. S. Lodge advises the use of sodium carbonate as a fungicide. This substance is obtainable in two forms, one, commonly known as washing soda, which contains a large percentage of water of crystallization, and the other as "dry sodium carbonate" in which this excess water has been removed. It is recommended for spraying Roses under glass, and should be used at the rate of one-and-half ounce of the crystalline form or three-quarters of an ounce of the dry form to one gallon of water. Soap should be added to make the solution adhere and the spray should be applied with force so that all the leaves and stems are well treated. It is claimed that the fungicide will not discolour the foliage, and it is cheaper and more effectual than the many spray fluids which have been recommended from time to time as a means of controlling this very serious disease.

Plant Breeding.—A very interesting address on "Scientific Plant Breeding" was delivered to the members of the Reading Rotary Club recently by Mr. W. Giles, head of the seed department of Messrs. Sutton and Sons, Reading. The lecturer briefly outlined the principles of Mendelism, and mentioned how, by their application, new varieties of vegetables and flowers had been evolved. Primulas, Gloxinias, Nemesias, Potatos, culinary Peas, and Beans were cited as a few subjects which had been considerably improved within recent times and many of the newer introductions had their birthplace at Reading.

Dr. Ragionieri's Ranunculus.—Visitors to the Ghent Quinquennial of last year will remember Dr. Ragionieri's exhibit of Ranunculus there, while those unable to attend may remember the reference made to them in these pages. We have since received a nicely printed and illustrated quarto pamphlet by him entitled, *Le Roselline di Firenze*, with some excellent coloured illustrations of the flowers. It contains an historical and cultural account of the flower of which Dr. Ragionieri has made such a successful speciality. We are reminded of this fact by an illustrated article on the subject which appears in the recent issue of our French contemporary, *La Revue Horticole*, of Paris.

Prof. C. S. Sargent.—We deeply regret to learn from the *American Florist* for February 9, that at the date of the publication of that Journal, Prof. Sargent was lying seriously ill at his residence at Holm Lea, Brookline, Massachusetts. We trust by this time that Prof. Sargent is much better, and tender him sincere sympathy and best wishes for a speedy recovery from his many friends in this country.

British Timber at the British Empire Exhibition.—A village hall, a house, and a pavilion, built of home-grown timbers and containing every manner of wooden article made in Great Britain, will form an important exhibit in the Forestry Section at Wembley. It is being organised by a Timber and Forest Products Committee, with Lord Lovat as its chairman, and Mr. W. Dallimore, of the Royal Botanic Gardens, Kew, as Secretary. The Committee has been divided into Scottish and English sections, with Sir Robert Lorimer designing for the former and Mr. Harold G. Turner for the latter. The Federated Home Grown Timber Merchants' Association is giving expert attention to construction. The village hall will be built of Scotch Pine and Larch. It will be 70 feet long and 20 feet wide. The other house will show the uses of English Oak in a half timbered 15th century house, in which 5,000 feet of Oak will be used. The Pavilion will be erected solely from English hard woods. Inside these structures will be placed exhibits of wonderful variety, such as fittings and furnishings from Caledonian woods, furniture, kitchen utensils, dairy implements, tool shafts, spokes, felloes and naves of wheels, brush backs and other things made from English hard stock. Outside there will be young trees shown by Scottish nurserymen. The development of the various woods will be an exhibit by the Forestry Commission. Visitors will see everything from setting and seedling, splitting and sawing down to ship's baulks and giant beams. The Exhibition's Forestry Section will be of great value in a time of house shortage and lack of materials. It will indicate how the ancient craft of forestry can best be reviewed.

Seale-Hayne Agriculture College.—A special short course of instruction consisting of lectures and practical work in dairying, horticulture and poultry-keeping is arranged by the Seale-Hayne Agriculture College, Newton Abbot, Devon, from May 5 to July 12. Particulars may be obtained from the Principal, Mr. D. R. Edwardes-Ker, O.B.E., M.A.

Walhampton Gardens.—These gardens, belonging to Lord and Lady St. Cyres at Lymington, Hampshire, are thrown open for the inspection of the public on Sundays during the summer, and last year as the result of collections made £13 has been given to the Lymington Cottage Hospital and £15 to the Gardeners' Royal Benevolent Institution.

Poisoning Caused by Eating Daffodils as Onions.—At the meeting of the Pharmaceutical Society held on January 30 in Edinburgh, an interesting case of poisoning caused through eating Daffodils in mistake for Onions was referred to by Mr. Thomas Wilson. He stated that a lady in lodgings, with four other adults, asked for an Onion from the landlady to be used in preparing a stew for dinner. She was advised where the Onions were kept and took what she presumed to be an Onion. It was, however, a double bulb of a Narcissus. The stew was made and partaken of by the five adults and before the meal was ended all the five persons were sick and vomiting and shivering. In two cases the vomiting was very severe. In a few hours, however, all the five persons had apparently completely recovered, and there seems to have been no ill after-effects. The *Pharmaceutical Journal and Pharmacist*, from which these particulars are taken, states that Narcissus bulbs may easily be mistaken for Onions, and that their virulent poisonous properties do not seem to be generally well known and advises that great care should be taken to store Daffodil bulbs in a place where they are not likely to be mistaken for and used as Onions. It was stated that had the usual quantity of the presumed Onions been used in the stew, the results might have been very serious indeed. That the case was not an isolated one was shown in the statement by Mr. Wilson that a brother pharmacist had told him of a personal experience in which his whole family had suffered severely from Daffodil poisoning, owing to a similar mistake.

Presentation to a Gardener.—Mr, James Tait, who has been gardener at Lynehow, Carlisle, for the past thirty years, has been presented by the members of Westlinton Parish Council and a few friends, with a silver tea service on the occasion of his leaving Lynehow, to take up his residence at Montgomery Street, Kinross, Scotland. Mr. Tait has been a member of the Westlinton Parish Council for many years, and for the past seventeen years has held the office of chairman of the Council. He has taken a keen interest in local affairs, and the presentation was made in appreciation of his valuable services in the district.

New Director of the Versailles College of Horticulture.—The French Minister of Agriculture has nominated M. J. Pinelle as Director of the Horticultural College at Versailles, in succession to M. Nanot, who has retired, the appointment to date from the 1st of January, 1924. Prior to his present appointment, M. Pinelle was Professor of Arboriculture to the City of Paris, and in that capacity directed the studies at the municipal horticultural school at St. Mandé. His capability, and the success with which he filled his previous post, augur well for the future of the celebrated institution at Versailles, which needs a certain number of reforms if it is to attain to the prosperity it formerly enjoyed.

Mr. David Ingamells.—Among those who do business in the flower trade in Covent Garden none is more popular than Mr. David Ingamells. He is the fortunate possessor of many excellent natural gifts, including those of unfailing good humour, kindliness and generosity, and as a consequence he has a wide circle of friends and acquaintances. Mr. Ingamells is a native of Lincolnshire and commenced his gardening career at Woodhall Spa, where he laid the foundation of that practical knowledge which has proved so eminently useful in his business life. After serving for seven years at Woodhall Spa, Mr. Ingamells went to Maidenhead, where he served under the late Mr. Robert Owen, who at that time was one of the leading Chrysanthemum growers and raisers. He stayed with Mr. Owen for about eight years and in 1894 he set out to make his own way in the world by commencing business as a flower salesman in Covent Garden. The high position he occupies to-day in this premier market is evidence of his fine commercial ability, and his business has grown, so that in addition to his original sale rooms in Catherine Street, he has two others in Wellington Street, including the old *Gardeners Chronicle* premises at No. 41; he has also several stands in the flower market and, in addition, a nursery at Maidenhead, for he is still a grower as well as a salesman. As chairman of the General and Market Committees of the British Florists' Federation, Mr. Ingamells has probably done more than any other man to improve the general condition of salesmen and growers in Covent Garden Flower Market, indeed, it is largely through his instrumentality that the British Florists' Federation is now regarded as the direct means of communication between the stallholders and the Covent Garden Estate Company. As Vice-chairman of the National Chrysanthemum Society, Mr. Ingamells has been long associated with the work of that body and especially with the deliberations of its Floral Committee; some years ago he was the ruling spirit in connection with the Market Chrysanthemum Shows which were held in Covent Garden. In the sacred cause of charity there is no harder worker than Mr. Ingamells, both on behalf of the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund, but the claims of the orphans are those nearest to his heart, and he has for very many years been a member of the Committee of the Orphan Fund and latterly its Chairman. Mr. Ingamells holds a high position in Freemasonry and is a prominent and popular member of the Hortus Lodge. Notwithstanding the claims of his extensive business and many other calls upon his time, he is still able to enjoy a game of bowls, at which particular sport he is not easy to beat.

MR. DAVID INGAMELLS.

Wart Disease in Potatos.—As the result of trials carried out at Ormskirk during 1923, and by the Board of Agriculture for Scotland, the following varieties have been added to the list of Potatos approved as immune for the purposes of the Wart Disease of Potatos Order of 1923:—*Early:* Balcarres; *Second Earlies:* The Massie and Wild Rose; *Late or Main Crop varieties:* Avondale, Beauty of Bute, Benalt, Buchan Beauty, Dundarave, Early Manister, Edinchip, Footprint, Golden Marvel, Keay's Champion, Liddesdale Lad, Mains Surprise, Royal Stewart, Scottish Chief, and Spion Cop. The Ministry of Agriculture will continue the seasonal tests of Potatos and Potato seedlings for immunity to Wart Disease at the Potato Testing Station of the National Institute of Agricultural Botany at Ormskirk during the present year. Growers wishing to avail themselves of the facilities should apply to the Potato Testing Station, Lathom, Ormskirk, Lancashire, for a form of entry which should be filled in and returned to the station.

Early Vegetables from France Prohibited.—The export of fresh vegetables from France has been prohibited until May 1st next by a decree recently issued in Paris. As is well-known, large supplies of early vegetables are imported from France in Spring, and last April the importations of Potatos alone amounted to nearly four hundred and fifty tons, valued at £16,795. Early Lettuce, Endive, Carrots, Tomatos, Radishes, and Cauliflowers are also exported from France to this country in large quantities, and last year the general vegetable imports for April were valued at nearly £115,000, the greater portion of the supplies being of French origin.

Appointments for the Ensuing Week.—Monday, March 10: Bath Gardeners' Society's meeting; United Horticultural Benefit and Provident Society's Annual meeting; Reading and District Gardeners' Mutual Improvement Association's lecture. Tuesday, March 11: Royal Horticultural Society's Committees meet (two days); Horticultural Club Dinner and Lecture at Trocadero Restaurant; Jersey Gard, Soc. meeting. Wednesday, March 12: East Anglian Horticultural Soc. meeting; Sheffield Chrysanthemum Soc. meeting; Wimbledon Gardeners' Mutual Improvement Society's meeting. Friday, March 14: Royal Horticultural Society of Ireland Council meeting; Manchester and North of England Orchid Society's Meeting. Saturday, March 15: British Mycological Soc. meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Horticultural Society*, March 6, W. W. Salmon, Esq., in the chair. Mr. George Paul, of Cheshunt, and Mr. Turner, of Slough, were elected Fellows. Among subjects of exhibition, Mr. Mylam, gardener to S. Rucker, Esq., of Wandsworth, sent Galeandra Devoniana, a pretty trumpet-flowered terrestrial Orchid from Demerara, and a nicely-flowered specimen of Phalaenopsis amabilis. A Banksian medal was awarded for the latter. From Messrs Jackson, of Kingston, came Odontoglossum stellatum, a small white-lipped species, pretty enough, but ineffective except in masses. Messrs. Henderson, of Pine-apple Place, sent Mormodes buccinator, so named on account of its trumpet-shaped lip; a small specimen of Portlandia grandiflora, one of our old-fashioned stove-plants, which has for some time been lost sight of, but which is now beginning to command attention; and a fine specimen of Bilbergia zebrina, a Pine-apple-like plant, having two large gracefully drooping flower spikes, whose gaiety consists more in the long pink floral leaves with which they were clothed, than in the flowers themselves, which possess but little beauty. A Certificate of Merit was awarded for the latter. A nice specimen of Dielytra spectabilis, to which a Banksian medal was awarded, was produced by Messrs. Knight and Perry. This, which is one of the handsomest of Fumeworts, was sent to the Horticultural Society from the north of China, by Mr. Fortune. It is believed to be hardy, but this point has not been conclusively settled, for it is very difficult to increase, and as yet plants of it have been too scarce to allow of their being made the subjects of experiment. The plant in question has been slightly forced, and therefore its long racemes of pink flowers were not so deeply coloured as they should have been had it been grown more slowly and in bright light. *Gard. Chron., March* 10, 1849.

GARDENS AT THE IDEAL HOMES EXHIBITION.

In the great annexe at Olympia there are twelve gardens and together these provide the most charmingly attractive section of the Ideal Homes Exhibition, which was opened on Thursday, February 28th, by Her Royal Highness the Duchess of York, and continues open until the 22nd inst. The ground plan has been materially altered from that adopted in previous years and the result is seen in a better arrangement of gardens and more room for visitors. Gardeners who are in London during the period of the exhibition should visit Olympia, as the various garden designs are instructive.

Mr. Ernest Dixon has a formal sunk garden with flagged paths around a central bed of Rhododendrons and other choice shrubs. The borders are planted with interesting dwarf shrubs, Conifers and Daffodils. The whole is enclosed in a hedge and there are comfortable seats in the semi-circular recesses at each end. Messrs. Luff and Sons have a large, formal enclosed, garden, brilliantly and densely planted with Tulips. The centre is flagged and has a quaint and formal Lily Pool, in which one or two fully expanded Tulip blooms do duty for Nymphaea flowers. At either end of one border banks of beautiful Azalea mollis give additional brilliance, and these are associated with Wistaria and Laburnum in flower. Across one end of the garden a pergola is lightly draped with Wistaria, and at the opposite end a pretty tea house permits a view of the whole design, but it seems scarcely formal enough to be in harmony with the garden. The same firm has a pleasing rock garden wherein Heaths, Magnolias, Viburnum Carlesii, Azalea Hinomanyo, Crocuses, Kalmia glauca and Anemones are bright features. Messrs. Winder and Thomson contribute a formal garden partly enclosed with walls and partly by hedges. A sun-dial forms the central point, and other features include beds of Hyacinths and ornamental stone seats. A delightful demonstration of the proper positioning of stones for a rock garden is given by Captain R. Symonds-Jeune, whose exhibit is particularly attractive. The grey stone looks as though it had been in position for centuries, and the old Junipers emphasise this effect of age. Flowering Heaths, Primulas, drifts of Crocuses and Anemones are used with artistic restraint in the planting, but we wonder why Capt. Symonds-Jeune used two kinds of turf—Silloth and the common variety—around the rocks, and how long Erica gracilis has been a suitable Heath for the rock garden!

Messrs. Allwood Bros.' little Carnation garden is well planned and cleverly planted with the best perpetual-flowering Carnations and varieties of Dianthus Allwoodii. It is bright and attractive—an ideal garden. Messrs. J. Cheal and Sons' garden is severely formal—quiet and dignified—with a low hedge all around and a series of examples of topiary work within. It includes small lawns and a formal and serviceable tea house. Outside the hedge are narrow borders planted with a very interesting set of evergreen shrubs including golden Hollies and Ruscus hypoglossum.

The rock garden constructed by the Orpington Nurseries Co. is very pleasing with its easy descent from a coppice of Beech and Conifer, and it has a little pool that is entirely in keeping with the general arrangement. Fortunately the margins of the pool are not crowded with plants. Hardy Heaths are a feature near the low out-cropping stones while Azalea mollis is used in the open away from the rocks and there are golden Crocuses studding the grass. Mr. B. Pinney has a corner garden with paved walks and mossy borders, wherein are hosts of Primulas, a few Hyacinths, and a splendid lot of Violets.

The Central Garden Supplies Co. has a terraced garden with lawns and trim hedges on the higher level, and beds and borders of very choice shrubs below, in which are Rhododendrons in flower, the fragrant Viburnum Carlesii, the graceful Pieris floribunda, Magnolia stellata and other choice shrubs. At the lowest level is a rock garden in which stone has been rather too freely used for our taste. Suitable alpine plants are disposed among the rocks. The three-cornered Dutch garden arranged by Messrs. R. Neal and Sons is in effect a blue garden, and therefore proves very attractive to many visitors.

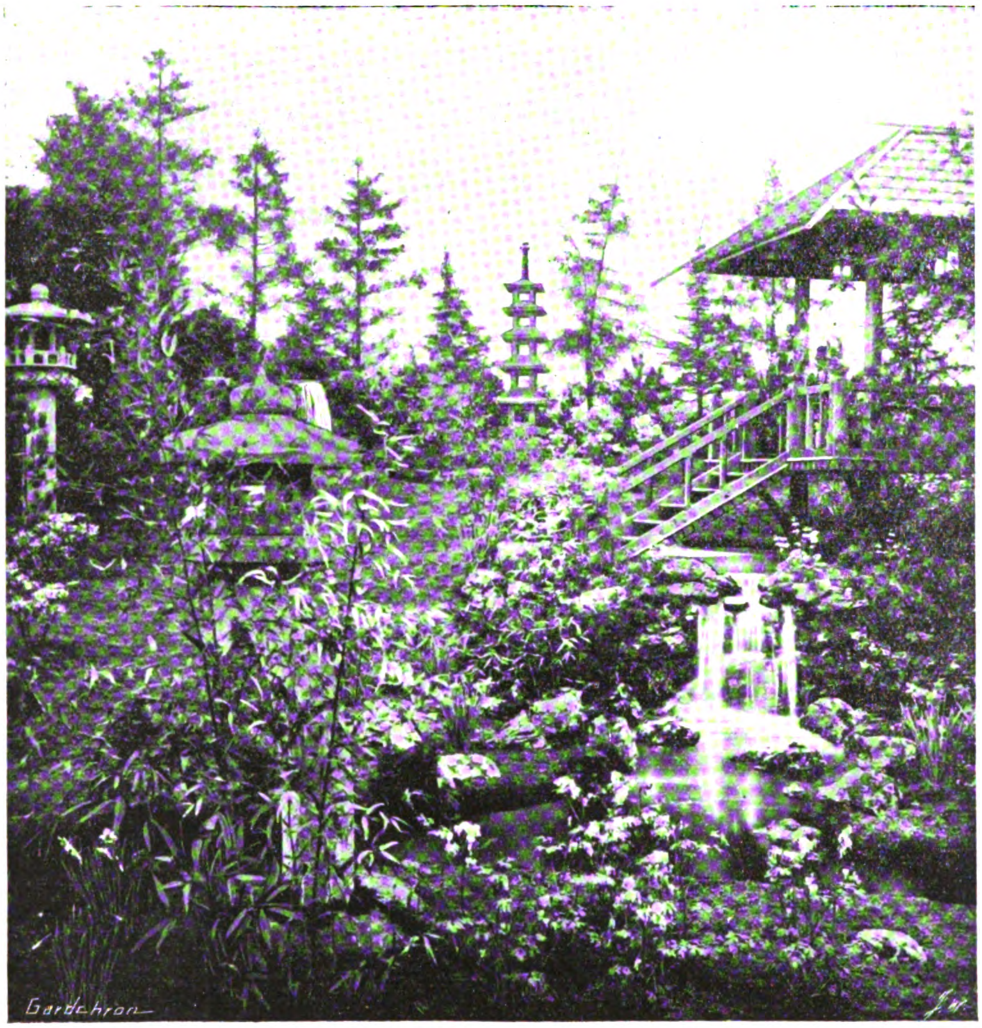

FIG. 52.—MESSRS. J. CARTER AND CO.'S JAPANESE GARDEN AT THE IDEAL HOMES EXHIBITION

Mr. G. Whitelegg's formal garden is brightly planted. Steps lead down to it from a tiny terrace at one end where water issues from a quaint spring, falls into a pool below and is carried thence to the central fountain basin. Choice shrubs and Daffodils are planted in the borders, and the dwarf alpines, Azalea mollis and Viburnum Carlesii are conspicuously good. Flagged pathways lead through the formal garden to a pleasing rock garden with its drifts of Saxifrages, Primulas, alpine Azaleas and other suitable plants.

Lastly, Messrs. James Carter and Co.'s Japanese garden calls for special mention by reason of its charming design and great beauty. There is a tea house carried over a pool of water which is fed from a waterfall up the hillside (see Fig. 52). The water passes down another fall into a stream below, which is crossed by a small bridge. It is a little hill-side garden. Azalea mollis is sparingly planted near a background of Conifers, while Daffodils spring from the grass. By the stream-side double Cherries are flowering in association with the grace of Bamboos. Near the water there are also groups of Daffodils, Primulas, and the homely, but none the less beautiful, Dielytra spectabilis. Two Japanese stone lanterns figure in this garden picture and a distant pergola beyond the grove of Maples is most effective. Considering the position and other difficulties we believe that Messrs. Carter have never designed and carried into effect a more exquisite garden at any exhibition. By the use of carefully hidden electric globes early morning, midday, sunset and evening effects are produced at will, and this feature forms a very great attraction to the general public.

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman Bart., Gatton Park, Reigate.

Oncidium.—As soon as the flower spikes have been removed from plants of Oncidium varicosum, O. Forbesii and O. concolor, the plants should be afforded only sufficient water at the roots to prevent the pseudo-bulbs from shrivelling. They will soon begin to grow afresh, and any that require fresh rooting-materials should be given attention as soon as young roots are observed to be pushing from the base of the new growths. These plants are best grown in shallow Orchid pans, without side-holes, and suspended from the roof-rafters in a house having a temperature ranging from 55° to 62°, with a slight increase in warmth as the season advances. The receptacles should be only sufficiently large to just accommodate the plants, as they do best in a restricted rooting space. In re-potting press the compost with moderate firmness between the roots, placing the base of the young growths well down into the soil. This method minimises the danger of damage by slugs, as these pests are particularly fond of the young succulent roots of Oncidiums. A suitable rooting medium for these Orchids consists of equal proportions of Al fibre or Osmunda fibre, half decayed Oak leaves rubbed through a half-inch sieve, and chopped Sphagnum Moss. Such Oncidiums as O. Papilio, O. flexuosum, O. Kramerianum and O. Cavendishianum should be re-potted when the new shoots are a few inches long and new roots commence to develop from their bases. These plants should be afforded a higher temperature than those first mentioned.

Odontoglossums.—After their long season of rest in an intermediate temperature, plants of Odontoglossum citrosmum are commencing to develop young growths, but they should still be kept dry at the roots until the flower spikes appear in the centre of the young shoots, when they should be watered thoroughly, and in every respect afforded more generous treatment. O. grande and O. Insleyi should still be resting in the warmest part of the Odontoglossum house. Many plants of O. crispum, O. Pescatorei, and the many hybrids of the cool growing section, together with Odontiodas, are developing their flower spikes. When they are of sufficient length the inflorescences should be tied to neat sticks. Slugs often appear in numbers at this season of the year and if not destroyed are very destructive to the young succulent flower spikes. As soon as slugs are observed a piece of wadding wrapped around the base of the leaf that shields the spike will serve as a protection from these pests, for while it remains moderately dry it will prevent the slugs from creeping up the stems. Lettuce leaves and damp bran should be placed on the stages among the plants as traps, and the pests should be searched for night and morning. A few plants may need re-potting at intervals throughout the year. The bulk of these plants are usually re-potted in August and September, but any requiring additional pot room that are rooting from the base of the current season's growths may be re-potted now.

Seedling Odontoglossums.—Where several of these plants are growing in the same pot they should be taken out of the receptacles when a few inches high and potted singly. Seedlings may, with advantage, be afforded a slightly higher temperature than the older established plants. If any seed capsules are ripe a portion of the seed may be sown at once around seedlings that have been re-potted during the past two or three weeks.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Half-hardy Annuals.—These plants need a fairly long period of growth to insure vigour before the season of flowering. Such popular bedding plants as Stocks, Asters, Tagetes, Marigolds, Nemesias, Salpiglossis, Phlox Drummondii and Zinnias, may be sown during the first half of March, and germinated in a moderate temperature. No annuals require a brisk heat. Owing to lack of space there is frequently a disposition to sow most of these too thickly, and it is important that the seedlings should be transplanted at an early stage, or overcrowding will result in loss of vitality in the plants. Prick off the seedlings in a frame as near the glass as possible, and ventilate the frame freely to promote sturdy growth. Many of these plants succeed when sown in a warm, sheltered position out-of-doors in April, and where no frame accommodation is available quite good results may be obtained by this method, though, naturally, the season of flowering will be shorter. For late supplies of cut flowers this method has much to recommend it.

Polyanthus.—These beautiful, spring-flowering plants play a great part in the floral display of gardens during the early months of the year. They are invaluable for use in spring bedding, also for growing in shady borders and the front of shrubberies. The seed should be sown in boxes now and the seed pans placed in a cold frame and kept shaded. Germination is frequently slow and irregular, and a piece of glass should be placed over the seed-box to prevent loss of moisture. As soon as the seedlings are sufficiently advanced prick them out and grow them on in a cold frame until they are large enough to transfer to nursery rows in the open.

Early-flowering Chrysanthemums.—Where increased stock of these valuable border plants is required, young growths, should be dibbled into boxes of light, sandy soil and stood in an intermediate house. When rooted they should be removed to a cool house, and finally to cold frames. As soon as they have been thoroughly hardened they may be planted direct from these boxes to their flowering quarters.

PLANTS UNDER GLASS.

By F. J. Clark, Gardener to Lt.-Col. Sir George Holford, Westonbirt, Tetbury, Gloucestershire.

Potting.—That cleanliness is essential to good culture, not only applies to the plants, but also to the materials used in growing them. Pots and crocks should be thoroughly washed and dried before being used. The soil in which the plants are to be potted should be warmed to the temperature of the house in which they are growing, and if easy access to a warm potting shed is not available, the potting and top-dressing should be performed in the house containing the plants. It also should be remembered that most stove plants during their active seasons of growth require copious supplies of water, therefore the importance of providing efficient drainage can scarcely be over-rated. And in this connection I am not thinking only of the "crocking" of the pots (notwithstanding this is an important detail of pot-plant culture and one that is too often performed carelessly), but also of the importance, when preparing composts, of making adequate use of materials which are calculated to admit of a free passage of water through the soil. Charcoal is one of the most essential aids to the successful culture of stove and other plants, and to a certain extent may be said to act as a "safety valve" against over-watering.

Foliage plants.—Crotons succeed in a soil composed chiefly of fibrous loam. Pots of small size should be used. Cuttings, which should be inserted singly in small pots and placed over strong bottom heat in the propagating frame, may be procured from plants which have become "leggy," or the tops from these may be rooted by "ringing," which is done by cutting with a sharp knife, a narrow band (both of the outer and the inner bark) from the stem, and tightly binding a part of fresh moss over the incision. By keeping the moss moist through frequent syringings, roots will develop in a few weeks, when the tops may be taken off below the new roots and potted as specimens. Dracaenas, Acalyphas, and Caladiums grow well in a compost consisting of about equal parts loam and peat, the amount of the latter to be varied according to the texture of the loam, with the addition of charcoal and sand. Dracaenas may be propagated by means of "toes," that is, by cutting the roots into sections and placing them in light, sandy soil or fibre over bottom heat, or the stems of the plant may be laid in the same materials after partially severing them at intervals of an inch or two. The varieties of Pandanus are easily propagated by offsets from the main stem, which should be taken off with a sharp knife and dibbled, not too deeply, in small pots filled with light, sandy soil. Acalypha musaica, when well grown on a single stem, makes an attractive decorative plant. It is easy to grow, but care should be taken not to allow thrips to infest the plant. Stock plants should be partially cut back and the resultant growths will, in a few weeks, provide more useful cuttings than the old tops and will also root more readily then, than at the present time.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Black Currant Bud Mite.—Black Currant bushes infested with big bud should have the swollen buds removed by hand picking, as previously advised, and the shoots dressed for a few weeks at fortnightly intervals with a mixture of lime and sulphur. As the days become warmer, the mites will leave the old buds to attack fresh ones, and will be destroyed by this treatment.

Protection of Fruit Blossom.—Trees trained on warm walls, and especially Apricots, will soon be in bloom, and the blossoms will need to be protected against damage by frosts and cold winds. The best method is to fix light canvas blinds on runners fastened to the top of the wall, and provided with cords and pulleys for raising and lowering them at will. Another method is to place stout poles against the wall, fastened at the top, and inserted in the ground about two feet from the base of the wall, and the top half covered with two or three thicknesses of fish netting, tying the latter securely to the poles with thin twine.

Orchard Trees.—The pruning and thinning of the shoots of Orchard trees should be finished by this date, and all prunings raked up and burnt. The importance of keeping orchard trees well thinned cannot be too strongly emphasised. Most orchards are planted with standard trees, especially grass orchards, in which sheep, pigs, and other animals are often grazed. Such trees are usually allowed to develop a mass of growth through which the sun and air cannot enter. The stems should be protected with tree guards or wire netting where the animals are grazed.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

New Vine Borders.—Where it is proposed to make new vine borders preparation should now be made in readiness for planting the vines towards the end of the present month, or during the first fortnight in April. It is always advisable to have the compost prepared and placed in position a week or more before planting takes place. In making new vine borders it will be necessary to provide a concrete bottom, especially where there is a clayey sub-soil, to prevent the roots penetrating into uncongenial soil. It is also essential to provide good drainage to ensure success in later years. A layer of old bricks placed on edge should be systematically laid all over the bottom of the trench, and broken bricks or clinkers placed on them to the depth of 12 to 18 inches; this should prove an efficient drainage. On top of the latter materials place a layer of turves, grass side downwards, before the compost for planting is added. Vine borders should not be made their full size at the start; three feet to four feet in width is ample for the first year. The compost should consist of good fibrous loam to which should be added clean quarter-inch bones, bone meal, charcoal and old mortar rubble, but concentrated vine manure should not be used the first season. The compost should be well mixed and then allowed to remain undisturbed for several days before being used. In building up the border, turves cut in pieces about four inches in diameter are suitable and will prove to be a greater attraction to the young fibrous roots than if larger turves are used. In planting the vines remove as much of the old soil from their roots as is possible and this is best done by immersing them in a tank of water. Disentangle the roots, spread them evenly over the surface of the newly-made border and cover them to the depth of three inches with soil already warmed to the same temperature as the atmosphere in the house. If the young vines have not previously been cut back I strongly recommend not to do this now, but to rub out all the buds to the desired length of rod. By this method there will be no risk of the vines bleeding; the disbudded portion may be removed when the young vines are growing freely without any fear of this taking place. After planting the vines will require very little, if any, artificial warmth at that stage.

THE KITCHEN GARDEN.

By Walter Y. Staward, Gardener to Mrs. John Feeney, The Moat, Berkswell, Warwickshire.

Leeks.—Seedling Leeks raised from seeds sown sometime ago are ready for transplanting into boxes or large 60-sized pots. The same treatment as advised for Onions will suit them.

Peas.—A liberal sowing of an early variety and a lesser quantity of a second-early variety of Peas should be made for successional cropping. To maintain a continuous supply of pods other sowings should be made every week, according to the demand.

Cauliflowers.—Where Cauliflower seed was sown in boxes for early supply some time since the seedlings should be ready for pricking off in frames containing sandy loam. Keep the frames closed for a few days until the young plants are established, when a little air should be admitted, increasing the amount on fine days as the plants get larger. Plenty of mats should be placed in readiness for use in times of frost.

Chinese Artichokes.—If the roots of Stachys tuberifera have been left in the ground they should be lifted and good, sound tubers selected for replanting. The rows should be 18 inches apart and the tubers set 10 inches to 12 inches asunder. A fine soil is best suited to this crop. When the lines have been drawn out and the tubers placed in the rows dress the latter with wood ashes.

Radish.—Sow Radish seed for succession at intervals of about ten days. If sown in frames and the sashes kept closed Radish seed will soon germinate.

Brassicas.—A south border should be prepared and sowings made of early and late Cabbages, Savoys, Cauliflowers, Brussels Sprouts, Scotch Kale, Kohl Rabi, Broccoli, Cos Lettuce and Cabbage Lettuce. Make the soil very fine, and when the seed has been sown if birds are likely to be troublesome place a net over the seed bed. The net should be made secure against being displaced by wind.

PLANTS NEW OR NOTEWORTHY.

ERANTHIS TUBERGENII.

(E. hyemalis × E. cilicica).

This remarkable garden hybrid (Fig. 53) richly deserves the Award of Merit it received on the 12th February at a meeting of the Royal Horticultural Society, as shown by Sir William Lawrence.

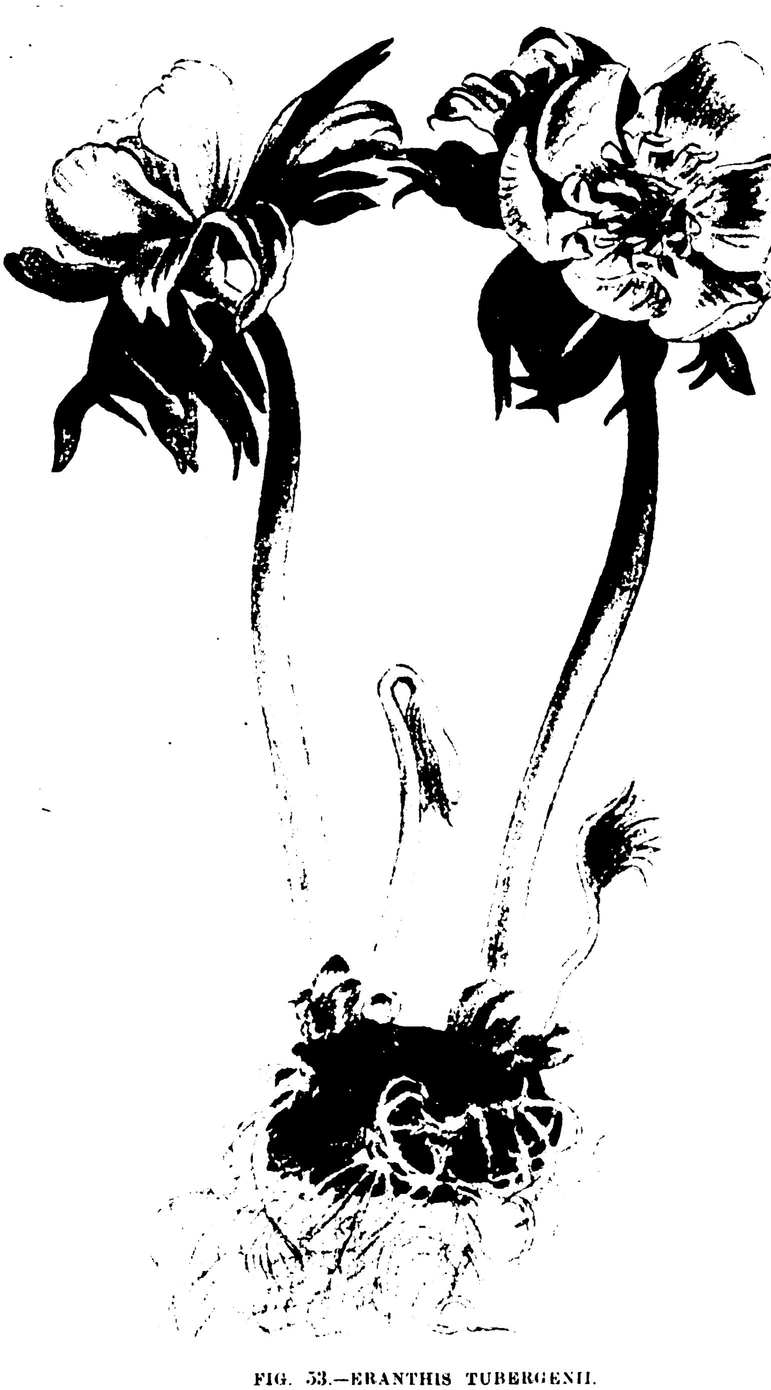

FIG. 53.—ERANTHIS TUBERGENII.

It was raised at Haarlem by the brothers Hoog, who now carry on the business and great work in hybridising of their late uncle, Mr. C. G. Van Tubergen. Through their kindness I have grown the plant here since 1921 and can give it a good character for hardiness and beauty. As occasionally happens with a first cross between distinct species, this hybrid exceeds both parents in vigour and size. The bright yellow flowers are sweetly scented and when fully expanded measure almost two inches across. The green involucre is more reflexed than in E. hyemalis but less finely divided than in E. cilicica. The upper portion of the stalk is more or less tinged with red as in E. cilicica, when grown in the open.

So far the plants have proved sterile, but increase by division of the tubers has been more generous than is usual with its parents. Many of the flowers, especially the larger ones that open first, show an interesting gradation of form from the normally shaped anther to to the centrally placed follicles. The addition of a short stigmatic appendix to the apex of the anthers of the second rank of stamens may be more marked in the next inner rank until it becomes difficult to designate the organs. In many cases they possess lengthy filaments surmounted by more or less boat-shaped, open follicles, in which the ovules are exposed quite nakedly.

The number of follicles is much higher than in the parents, and, only counting those that are perfectly formed, may be from twenty to thirty instead of the usual six of E. hyemalis. They appear to contain perfectly formed ovules so that it should be possible to obtain seed if pollination were carried out carefully. *E. A. Bowles, Myddelton House.*

NOTES FROM WISLEY.

Considerable attention has lately been given to the numerous species of the Crocus family, many of which will set seed readily. As a result of this some striking new hybrids have been raised, and although they may lack the stature and hardiness of the common Dutch kinds they offer a wonderful range of colouring and cover a long flowering period. A collection of these newer Crocuses is to be seen in the frames by the Alpine house at Wisley, and their flowers when wide open on a sunny morning make a brilliant display, while when closed in dull weather the exquisite markings on the outside of the perianth are seen to advantage.

Among varieties whose flowers are individually remarkable are Crocus Sieberi versicolor Edelsten's Early, which is purple with pronounced white feathering, and C. chrysanthus Bumble Bee, with pale yellow segments, which have a brown-purple reverse. Another attractive variety of C. chrysanthus is Golden Pheasant with fine chocolate feathering. A species which most nearly approaches blue in colour is named (possibly erroneously) C. Tauri; the colour is deepest on the reverse of the segments, the base of which is yellow. Some good varieties of C. Imperati are also flowering, as is C. susianus. In the latter the edges of the vivid orange segments curve backwards and in good forms the heavy markings on the reverse are very nearly black.

On the dry bank behind the frames containing these Crocuses is a great display of Iris unguicularis, which has this year flowered in profusion.

In the Alpine house a number of Saxifrages belonging to the Kabschia group are flowering, such as the new, yellow-flowered S. Franzii, S. marginata, S. Obristii and S. Irvingii, of which there is a splendid pan. In the Megasia group Saxifraga afghanica and S. ligulata are blooming. The stems and sepals of the latter are of a good rose colour and the flowers white, suffused with rose, while S. afghanica has rosy-lavender flowers with brown stems and sepals. It also bears a considerable amount of foliage at flowering time when S. ligulata is often leafless, especially when out in the open. S. Megasea Beesiana which is valuable on account of its red leaves is not yet in flower. Its blooms are of a deeper colour than those of S. afghanica, but are disappointing by reason of their half-hearted manner of opening. Another member of this group which has not yet commenced to flower is one raised from seed sent into the gardens as that of a Begonia. The resulting plants certainly have a resemblance to Begonias in their young stage but appear to be a form of S. ligulata.

Other plants now blooming in this house are Allium Chamaemoly with long ciliate leaves and a cluster of white flowers just above the soil level, and the bulbous Cyrtanthus lutescens, while on the rock garden a bed of Eranthis Tubergenii with its golden-yellow globular flowers is coming into bloom.

In the propagating pits plants of Ribes laurifolium and of R. laurifolium × R. Henryi are in bloom and will shortly be planted out. Here also a new Rhododendron is in flower. The seed (collected by Forrest) was sown only eighteen months ago. The largest plants are not more than two inches high including the inflorescence, which accounts for half-an-inch of this measurement.

Around the new pond there is at present little showing. On one side is a group of Betula nigra, the stems of which have been conspicuous during the winter months. The plants in question were raised from seed in America, and, contrary to expectation, have in some cases attained standard habit.

Close by, a new Forsythia (Farrer) is flowering in the new shrub border, which appears to be earlier than any of the varieties in general cultivation.

A curious fungus, Fomes annosus, has been found growing in the garden. It attacks Pine trees and gradually eats out the centre. Its brown fructification is sometimes a foot in diameter and a new layer is formed every year, the old layers persisting and becoming hard. The fructification and mycelium are strongly luminous. *J. E. G. White.*

TREES AND SHRUBS.

ARBUTUS MENZIESII: THE MADRONA.

There is no doubt that this tree may be regarded as the giant of the Heath family to which it belongs, exceeding in height and bulk even Rhododendron arboreum and R. giganteum. Mr. Jephson in his *Trees of California* describes it as reaching 125 ft. in height by 16 ft. in girth of trunk, and Prof. Sargent in the fifth volume of *Garden and Forest*, figured on p. 151 a tree growing at San Rafael in Marin County, California, which was 100 ft. high and 23 ft. in girth at three feet from the ground. It is, indeed, a notable constituent in that assembly of trees on the western side of the Rocky Mountains, which makes this region the most wonderful forest area on the globe. It has been far too much neglected in the gardens of this country, and old specimens are quite rare.

Except that vigorous, over-sappy shoots of young trees are apt to be cut back by frost, this Arbutus is perfectly hardy near London. At the same time it is better to avoid planting it fully exposed in a bleak, open spot. The picturesque but stunted specimen figured in the Supplementary plate, which grows near the Broad Walk at Kew, would have been happier in an open space in thin woodland or in a spot where there was surrounding vegetation not pressing too closely on it. Another important matter in its cultivation is that it should be put in its permanent place early, for it resents as much as any tree the root disturbance necessarily involved in transplanting. It is safest grown in a pot until finally planted out. That it is not a slow grower is shown by a tree at Kew raised from seed in 1895 which is now nearly 30 ft. high and its trunk 3 ft. 7 in. in girth at two feet from the ground.

Its leaves are the largest among Arbutuses, being 3 inches to 6 inches long and half as much wide, smooth and dark glossy green above, more or less glaucous beneath; although mostly entire, they are finely toothed on vigorous shoots. The blossoms appear in May, on panicles up to 6 inches or 9 inches long, the individual flowers being white, a quarter of an inch long, and with the pitcher shape common to the genus. Like the other species, but perhaps more conspicuously than any it is marked by its smooth, almost skin-like, terra-cotta coloured bark. It has, however, to become a certain age before this feature develops, and on the stems of young specimens the bark peels off in flakes.

Perhaps Bret Harte is not read so much by the present generation as by its immediate predecessors, but Jephson tells us that in his younger days that author journeyed overland from Eureka to the Bay of San Francisco and was then so much impressed by this tree that he afterwards composed verses in its honour, the first lines of which are:

> "Captain of the Western wood,
> Thou that apest Robin Hood,
> Green above thy scarlet hose
> How thy velvet mantle shows."

There is a certain poetical license in alluding to the bark as scarlet, still the resemblance to the traditional "red hose and coat of Lincoln green" of Robin Hood is near enough to be allowed in verse. Possibly the bark is redder in California than it becomes here. *W. J. B.*

ALPINE GARDEN.

GALAX APHYLLA.

This plant grows wild in the mountain bays of North Carolina, and is popularly known as the Fairy Wand Plant, probably on account of the stout, rigid stems bearing dainty, snow-white flowers. Although introduced so long ago as the early part of the eighteenth century, it is remarkable that the plant is seldom met with in gardens. It is perfectly hardy, and revels in moist and shady nooks on the rockery, planted in a fairly deep mixture of peaty soil and mould, with a little coarse sand added.

My plants of Galax are associated with Hartstongue Ferns (Scolopendriums) in a spot where the sun reaches them after 2 p.m., and the effect is charming. The tufts of large, pale green, evergreen, leathery foliage are very ornamental during the summer; but it is during the autumn that the plant has the greatest charm, for then the foliage assumes most glowing shades of red or crimson.

The leaves are rounded, toothed, and from three to four inches across, and shine like polished mahogany. They are much prized for cutting for winter decorations, and the making of floral emblems. The flowering period is from June to August.

SAXIFRAGA GUTHRIANA.

It is seldom that one meets with Saxifraga Guthriana under name, but this is not very surprising seeing that it belongs to the section best known in gardens as London Pride, S. umbrosa, which has become so common that its real worth is not properly recognised. The popularity of the Kabschias and the Aizoon Rockfoils also the members of the mossy section is deserved, but we are apt to give only scant consideration to other Saxifrages, and even the old London Pride justifies its ancient title of "None-so-pretty."

In the same section, too, there are Saxifrages which have sufficient attractions to call for consideration from lovers of hardy flowers. S. Guthriana is one of these. It is reputed to be a hybrid between S. Andrewsii, itself a hybrid, and S. Aizoon. It resembles S. Andrewsii very closely, except that it is dwarfer and more compact unless in specially rich soil. It has pleasing grey-green, leathery foliage, and produces light sprays of flowers of pearly pink hue. But to the connoisseur the typical S. Guthriana is eclipsed by its variegated form, which is a most distinct and remarkably pretty plant, having for the enthusiast what is, to him, an additional charm in giving some trouble to cultivate and, therefore, being a rare plant in gardens. It thus delights the grower who prides himself or herself on the possession of a rarity. This would be a small recommendation to most of us, but its intrinsic beauty is sufficient to justify its inclusion in the garden.

Those who know only the variegated form of S. umbrosa can form but a most imperfect idea of the charms of this variety of S. Guthriana; the variegation of the latter is far more distinct and more brilliant, and may be described as a lovely combination of white, pink and yellow on a green ground. But, unfortunately, the plant is troublesome to cultivate, and in the open it is a source of anxiety. It should, I think, be planted in a partially shaded place, and in soil, which, though light and well drained, is not too dry.

It is a gem for a cold or cool house from which frost is quite excluded. There it will be safe from the attacks of birds, which always proved with me its greatest enemies, delighting, as they do, to tear up its rosettes. In the open it is practically impossible to keep the birds from destroying this pretty Saxifrage. S. Guthriana is far from plentiful, but S. G. variegata is even less common, and I am not aware that it can be purchased from the trade. *S. Arnott.*

NOTES FROM GLASNEVIN.

Debregeasia velutina.

Little known outside botanic gardens this Indian shrub is of some ornamental value when in fruit. It will attain a height of six or seven feet, but could probably be kept shorter by suitable pruning in spring. The leaves are from four to six inches or more in length, lance shaped and narrowed to a point, hairy on both surfaces, the underside being whitish. The flowers, which are freely produced on the younger shoots, are monoecious and inconspicuous. The fruits become, when ripe, like small, yellow Raspberries. In this condition the shrub is conspicuous and suggests itself as an interesting decorative plant for winter effect in a warm house. Debregeasia belongs to the Urticacea, an order remarkable for the unattractive nature of the flowers.

Aristolochia Westlandii.

The Aristolochias constitute a genus of plants remarkable for the peculiar form of the flowers and the wide diversity in their size. Between the small, greenish-yellow flowers of A. Clematitis of the open border, and the huge blossoms of A. gigas Sturtevantii of the stove, there are many intermediates. A. Westlandii is a native of the warmer part of China and is easily grown in the stove, where it can be used as a climber. The leaves are six to eight inches or more in length, widest towards the middle, then gradually narrowed to a point, smooth on the upper surface, furnished with soft hairs below. The flower stalk, as well as the tube and back of the perianth, is covered with brown hairs. The striking part of the flower is, of course, the much developed limb of the perianth, which is broadly oval in shape, up to six inches long, and nearly as wide. The ground colour is pale yellow, but this is nearly obscured by innumerable purple veins and dots, a combination that immediately attracts visitors interested in the less common plants.

Rhododendron albescens.

This is a free flowering and beautiful greenhouse hybrid of unknown parentage blooming naturally in the warm greenhouse during February. It was listed in the catalogues of the late Mr. Wm. Bull in the eighties of last century. Plants were secured for the Glasnevin collection in 1898 from Mr. A. R. Wallace of Wimborne, and have been cultivated here ever since. The young shoots are scaly, the leaves lance-shaped, two inches by two-and-a-half inches long, half-inch by three-quarter-inch wide, glabrous and dark green above, glaucous and densely furnished with brown scales below; the petiole is about a quarter-of-an-inch long. The flowers are in corymbs of three to four; the stalk a quarter-of-an-inch long and, like the minute calyx, scaly; the corolla is pure white, funnel shaped, three inches wide, the lobes undulate, somewhat reflexed; stamens ten, equalling the corolla, hairy towards the base; style smooth, long exserted. This pretty hybrid is easily cultivated as a pot plant and can be stood outside from July to October, requiring only to be fed occasionally during the growing season in order to encourage the formation of flower buds.

Rhododendron albescens × R. ciliicalyx.

This is an even finer hybrid (Fig. 54), raised at Glasnevin some fifteen years ago and it flourishes under the same conditions as the first named. In this case the leaves are three to three-and-a-half inches long by three-quarters to one-and-a-quarter inch wide at the middle; dark green, sparsely scaly above, glaucous and densely scaly beneath; margins ciliate chiefly towards the base; petiole a quarter-inch to a half-inch long. flowers in corymbs of five, stalk half-inch long and scaly; calyx minute, lobes blunt; corolla broadly funnel shaped, four to four-and-a-half inches wide, pure white, with a faint yellow blotch in the throat; stamens ten, shorter than the corolla, softly hairy towards the base; young ovary also scaly. This is a delightful greenhouse plant; the flowers, at first pink, become white as they open and have a pleasant fragrance.

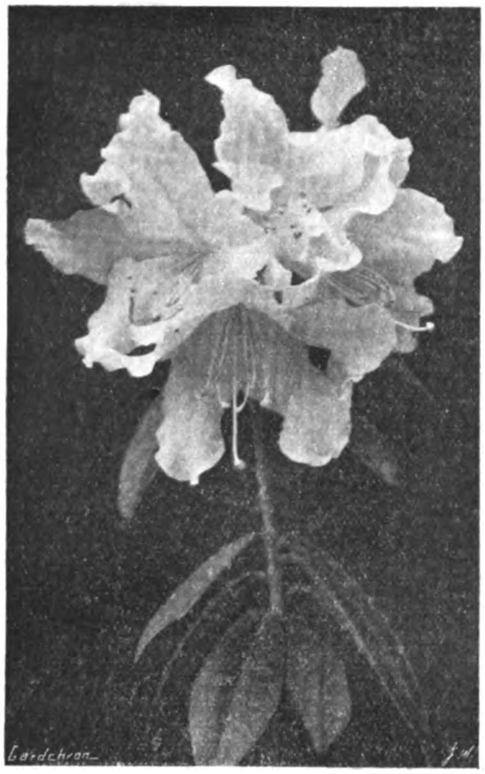

FIG. 54.—RHODODENDRON ALBESCENS × R. CILIICALYX, AT GLASNEVIN.

Rhododendron moupinense.

This charming species is now in full flower and is a true evergreen. The thickish leaves are glossy green and make a good foil to the pure white flowers which are up to two inches across. At Glasnevin, the plants of this species incline to a somewhat flat habit, but at Woodside, Howth, where the collection of Rhododendrons is considerable, it is forming erect bushes two to three feet in height.

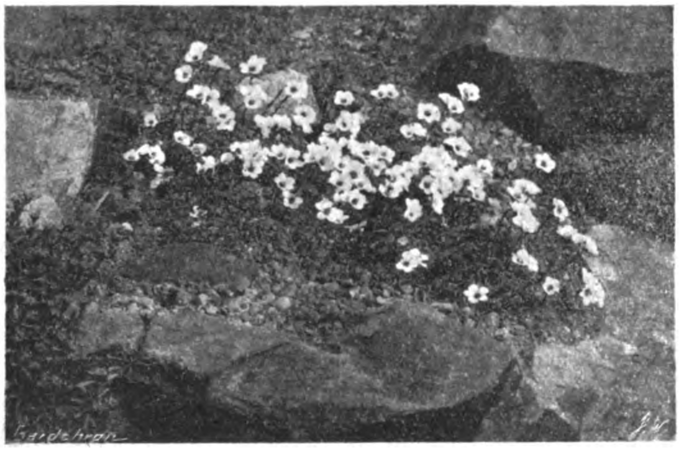

FIG. 55.—SAXIFRAGA SALOMONII AT GLASNEVIN.

Sedum compressum.

Interest in Sedums received a distinct impetus with the publication of Dr. Praeger's *Monograph* of the genus as found in cultivation. Among others the subject of this note is worth attention for the Alpine house or even the greenhouse. At Glasnevin it is grown with other succulent plants of various families in a house devoted to them. It is now in blossom, and the cymes of golden yellow flowers surmounting the glaucous leaves are distinctly attractive. The plant is of a somewhat spreading habit, the leaves clustered towards the apex of the shoot, oblanceolate and abruptly tapered to a sharp point, in a dry house glaucous, but less so in a cold frame where, too, it flowers later. S. compressum has somewhat the appearance of S. Palmeri but is a smaller plant with pointed leaves, not blunt as in the latter, the inflorescence not so erect but with flowers of the same golden yellow colour. A native of Mexico, it would probably be hardy in mild localities, especially if planted on a sunny bank or where it could hang over a friendly rock.

Columnea glabra.

This is a good species for basket cultivation, being of pendulous habit, the shoots bearing small, ovate, shortly-stalked leaves from the axils of which the orange-red flowers are now being produced. C. magnifica with more erect shoots and similar orange-red flowers is also in bloom and makes a useful group in the warm greenhouse.

Orchids.

Orchids now in flower include Dendrobium nobile with its varieties and hybrids, D. aureum, Laelia Jongheana, Odontoglossum pulchellum, O. mirandum, Coelogyne sparsa, C. intermedia, C. cristata, Bulbophyllum Watsonianum, Oncidium cheirophorum, Sophronitis grandiflora, several species of Eria, Maxillaria, Ada aurantiaca, numerous Masdevallias, and many other minute-flowered botanical Orchids.

The Rock Garden.

Many interesting plants are now flowering or coming into flower in the rock garden Snowdrops are very beautiful, including G. plicatus Digby's variety, Arnott's Seedling, Magnet, maximus, latifolius, lutescens, &c. The richly-coloured Crocus chrysanthus and its variety Canary Bird are beautiful in the sun, likewise C. aureus, C. Imperati, and its variety albidus, C. vernus albus, C. biflorus, and C. Alexanderi. Anemones blanda, Hepatica and angulosa are just in flower, while one clump of A. Pulsatilla is almost in bloom and others are just appearing. Sisyrinchium grandiflorum is almost fully open; Leucojum vernum and L. v. Wagneri are both plants of the first-class for early flowering, while few would care to be without Scilla sibirica and S. bifolia. Masses of Saxifraga apiculata and its white variety make a good show, and S. Borisii compacta, with red stalks and rich yellow flowers, makes a pretty picture. One clump of the shy-flowering S. Salomonii (Fig. 55) is bearing a good crop of flowers, so too is S. Haagii, of rich yellow colour but small flowered. Iris reticulata is in good flower together with Pulmonaria azurea, Adonises and the early flowering Heaths. *J. M. Besant, Glasnevin.*

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OBSERVATIONS ON LEAF SCORCH OF APPLE TREES.

THIS troublesome disorder of fruit trees seems to be becoming more prevalent, or, at any rate, more noticeable than in the past. It is now engaging attention at our experimental stations in this country, and doubtless much will be heard of it soon. Many gardeners must have had some experience of it and a useful purpose would be served if they could be induced to communicate what they know about it. My first experience with this trouble was in 1921. The very hot, dry summer we had that year lent some colour to the belief that it was really sun-scorch that the trees were suffering from, but the incidence of the "scorch" in my plantation was peculiar and caused me to consider that the name "leaf scorch" must have been applied more as descriptive of the appearance of the disorder than of the cause of it. It has also been stated that winds, as well as sun, may cause "scorch."

Now to describe its incidence on my plantation. It is in a cultivated area two acres in extent, and planted with standard trees with bush trees between. The eastern half of the area is further interplanted with Raspberries and no "scorch" was seen there. Three lines of the western half were interplanted with Rhubarb and again no "scorch" was found in this part. Between the last two lines on the northern border Strawberries were growing and here also no "scorch" appeared. The "scorch" was thus confined to the centre and southern part of the plot. There is no difference in the nature of the the trees, nor in the kind, to account for this, and, obviously, wind and sun have power equally over all. Weather could thus be ruled out of the question.

I had only just taken the place and was then unacquainted with what had been done with the land, but it was found that the part unoccupied by the more permanent interplantings had been heavily cropped with vegetables. Further examination then clearly showed that whereas the plantings of Raspberries, Strawberries and Rhubarb had been liberally manured, the vegetable portion had received little or none. It seemed, then, clear to me that either lack of manure, or the deep digging which vegetable growing entails were at the root of the trouble, and I received confirmation of this next season. I had a heap of wood ashes in my garden over which were thrown house slops. This heap consisted of fairly strong stuff by the autumn and was used for digging in the soil round affected trees.

The summer of 1922 was notable for lack of sunshine, but still "scorch" appeared in the usual place as badly as in 1921. The part of the garden dressed as described was transformed. The foliage of the trees was luxurious, growth good, and a few Cherry Apples gave crops of outstanding size and colour, whereas a tree undressed gave only a few miserable fruits and had not a good leaf on it. Another interesting fact was noticed. Several trees from the "scorch" area were lifted in 1921 and some were again planted in the "scorch" area, and some outside it. A good dressing of farmyard manure was applied at the time of transplanting and no signs of "scorch" appeared on any of the trees so treated in 1922.

It would appear, therefore, that the factor of disturbance of the roots may be ruled out as a contributory cause, and that lack of some food constituent is the reason. Experiments were proceeded with in the winter of 1922. Part of the "scorch" area was manured with farmyard manure and a dressing of sulphate of potash applied to some of the trees. The result in 1923 was as follows. No "scorch" appeared on the area dressed with farmyard manure, or with manure and potash, except in the case of the variety Newton Wonder. Where potash alone was given "scorch" was present, but not nearly so marked. Trees receiving no manure and no potash were "scorched" as badly as ever.

It has been stated by some writers that a large leaf-surface was likely to induce the trouble, as, owing to the fact that the root system was scanty, it was unable to support the foliage, and for this reason one was advised not to use nitrogenous manures. This may be true, but the converse does not hold, for a line of trees that was headed back and grafted developed "scorch" badly on the grafts. Similar grafts on trees on manured land did not develop it.

The varieties of Apples affected with me were:—Beauty of Bath, Worcester Pearmain, Cox's Orange Pippin, Lane's Prince Albert, Bramley's Seedling, Cherry Apple and Newton Wonder. The last named seems to be the worst variety to take "scorch," and is the most difficult to cure. *E. Brown.*

SOME UNSOLVED PROBLEMS AFFECTING THE FRUIT GROWER.*

(*Concluded from p.* 122).

HEAVY cropping varieties, no doubt, are capable of producing fruits over widely varying conditions; others are less catholic in their tastes and produce fruits sparingly except under ideal conditions. What state of affairs, then, produces the greatest fecundity, and what affects it adversely?

There are two sections of the problem. One is purely scientific—a question of biology. I refer to a complete study of the physiology of the tree. We know very little of this phase of the question at present and until we do the whole story of the second section, viz., that dealing with the cultural conditions which affect the question, cannot be told. Though we require further knowledge of pure plant physiology in order to ascertain the reason for our results, the degree of fruitfulness or fecundity depends on factors which, with two exceptions, can be altered by cultural operations. They are:—(1), soil water supply; (2), the nutrient content of the soil; (3), root stock influence; (4), the tree character of the particular variety which is being considered; and (5) climatic conditions.

It is patent, therefore, that we cannot hope investigations into pruning, fruit bud formation, etc., to produce much result until we know more of these factors which are always present and which produce varying effects.

To my mind, therefore, more attention should be paid to these fundamental problems before dealing with detailed questions of culture. Take for instance the question of soil-water supply. By growing trees of one variety, all worked in the same known rootstock and under so far as may be possible identical nutrient conditions in the soil and without pruning, it should be possible to determine the health of the tree, not only in its growth and freedom from disease, but also its fertility, as affected by excessive, ample, and reduced supplies of water under varying climatic conditions.

Similarly with manuring. Investigation into the effect of manuring or the nutrient content of the soil may be ascertained by considering the same variety with similar and ample soil-water conditions with a known rootstock. The investigation in each of these cases must be carried out mainly with a view to ascertaining their effect on the fecundity of the tree.

At the same time, a systematic research should be carried out into the habits of growth of the chief commercial varieties. The tree characters of all varieties are very different. Most of us know, for example, that Bramley's Seedling is of vigorous growth, that Lane's Prince Albert is a spur bearer, that Worester Pearmain is a twig bearer; but we have no detailed description of the trees and of their habits. Who, for instance, can exactly describe the sequence of events in the formation of a spur in, say, a fifteen-year-old tree of Bramley's Seedling, and the length of time it takes for it to reach the fruiting stage. Perhaps, if we did, we might be able to modify our cultural operations, and so shorten the period it takes for them to reach fruitfulness.

The actual selection of rootstocks is, I am glad to say, complete, and trials into the effect of the various stocks on their scions have been commenced under similar conditions so far as it is possible, but, with regret, we recognise we cannot obtain such complete information as we desire, with little or nothing known of the various other influences previously indicated at work. Nevertheless, it is gratifying to know that the completion of this work in selecting rootstocks has removed one of the chief difficulties in the way of successful work in soil moisture, manuring and physiology. It is this question of tree fecundity, the solution of which I maintain is of such paramount importance.

The complete solution of such problems of immediate interest as leaf scorch, biennial fruiting, fruit bud formation, when and how to manure, and how to prune, cannot be looked for until much more work has been carried out on the lines I have indicated.

If anyone has any doubt on this score, I would remind growers that during the last twenty years, methods of pruning and manuring have altered considerably, though there is no time now to indicate the extent and manner of the alteration. It seems probable, however, that—(1) one of the chief considerations influencing successful Apple growing and, in fact, all fruit growing, is the obtaining of a sufficient and regulated soil water supply throughout the year; for this reason I have stressed this point; (2) pruning mature trees is a process which should only be adopted as a last resource and should, even then, be confined almost entirely to thinning and tipping; and (3) that our system of tree nutrition, even on the most approved plan, is almost as liable to produce harmful instead of good results by upsetting the balance of the tree, and causing growth at the expense of fruiting.

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* Summary of a paper on "Some Unsolved Problems Affecting the Fruit grower," read by Captain R. Wellington at the "Fruit Conference" held at Seale-Hayne Agricultural College, Newton Abbot, Devon, on January 22, 1924.

In one section of the work only, that of fruit bud formation, to illustate how much is left to conjecture and how little we know, I would ask reference to be made to the very interesting reports published by Professor K. P. T. Barker and Mr. Lees in the Annual Reports of the Long Ashton Research Station from 1916-23. I am sure the reader will come to the conclusion that we cannot advance our knowledge on this subject to a satisfactory conclusion until we have more work carried out on the fundamental problem I have mentioned.

In referring to Apples, I have discussed a vast field of work which alone could occupy, if funds were available, the entire attention of many workers. If the culture of Apples suggests so much, is there not equally as large a field in connection with each of the other top fruits and the bush fruits?

For my second and last problem let me refer briefly to the Black Currant, the tree cultivation of which suggests a very similar line of work to that already mentioned. Fortunately, however, in this case, there is no rootstock problem to complicate matters. "reversion" and "running off" are two troubles which concern deeply all Black Currant growers.

Reversion is that curious change which takes place in the bush in which the leaf and flower characters are conspicuously altered and in which the trees become generally sterile. Much work has been done on this subject. It has been shown by Mr. Lees that in certain forms reversion and big-bud mite attack are correlated. It seems certain that big-bud mite is not the sole cause, and that there are other forms of reversion. We badly require to know more of the causes which produce this disastrous state of affairs. To produce a clean change in the leaf and flower characters of the tree, there must be some very radical change in the physiology of the plant. So far, we have been unable to discover what it is. "Running off," or the dropping of the immature berries in the early summer, is, no doubt, partly due to the cause discovered as a result of research at East Malling, i.e., to the inability of the plant to produce self-pollination by reason of the fact that the anthers and the pistils of the flower show great dissimilarity in length. But, is this the whole problem?

Would not a study, on the one hand, of the actual plant physiology of the Black Currant and the effect of soil water supply, tree characters, nutrient content of the soil, on the other, most likely form the foundation, if not the actual, solution of both these troubles?

In these two examples, samples of many, one concerning Apples and the other Black Currants, are we not working from the wrong end, when we try and elucidate complex problems of this description direct, when we know so little of the fundamentals of the life of the tree in health?

THE ROSE GARDEN.

THE BEST BEDDING RED ROSE.

When *W. H. W.* quoted a note of mine which appeared in one of the *Annual* of The National Rose Society he might also have added what I wrote upon new Roses. It reads: "Before any one discards a Rose as unsatisfactory, you must be sure that you have come to a wise conclusion. I do not believe in discarding a Rose—especially one of the newer varieties—after one year's trial. I believe in the three years' system of average. If a Rose proves consistently indifferent or unsatisfactory in your garden over a trial of three years, then, out with it." When I write upon new Roses, I invariably state that any criticism I make is subject to further trial and experience. I have lived long enough to learn that a trial of one year is no guide. Raiser's plants, especially those from foreign sources, are seldom strong, and one has to work fresh stock in order to ensure good results.

W. H. W. does not agree with me in regard to Colonel Oswald Fitzgerald. I cannot, of course, help that. One fact, however, is beyond dispute; it is this. During the season of 1923, at the leading shows of this country, one decorative Rose was supreme. It was Colonel Oswald Fitzgerald. At Saltaire, Glasgow, Shrewsbury, Edinburgh, the autumn show of the National Rose Society in London, and again at Holland Park, the exhibits of this Rose were superb. I saw these exhibits and they are impressed on my memory. No other decorative variety approached it for colour and for formation. *W. H. W.* admits that Etoile de Hollande is not an ideal bedding Rose. Colonel Oswald Fitzgerald has the grace and vivacity of an Irish Colleen; Etoile de Holland has not. We can forgive this Irish Rose its want of fragrance as its other merits are abundant.

Hortulanus Budde is not a stranger to me. I agree with every word written by *W. H. W.* in regard to its brilliant scarlet colour. It has some serious faults, however, which are doubtless derived from its pollen parent Mme. E. Herriot. The flowers have the weak points of that variety, and they droop badly. The beauty of the flower—either for bedding or cut for decorative use—is lost in consequence. It is, too, a victim to mildew. Without these two serious faults it would certainly have been well within the limits of perfection's sacred heights. *George M. Taylor, Edinburgh.*

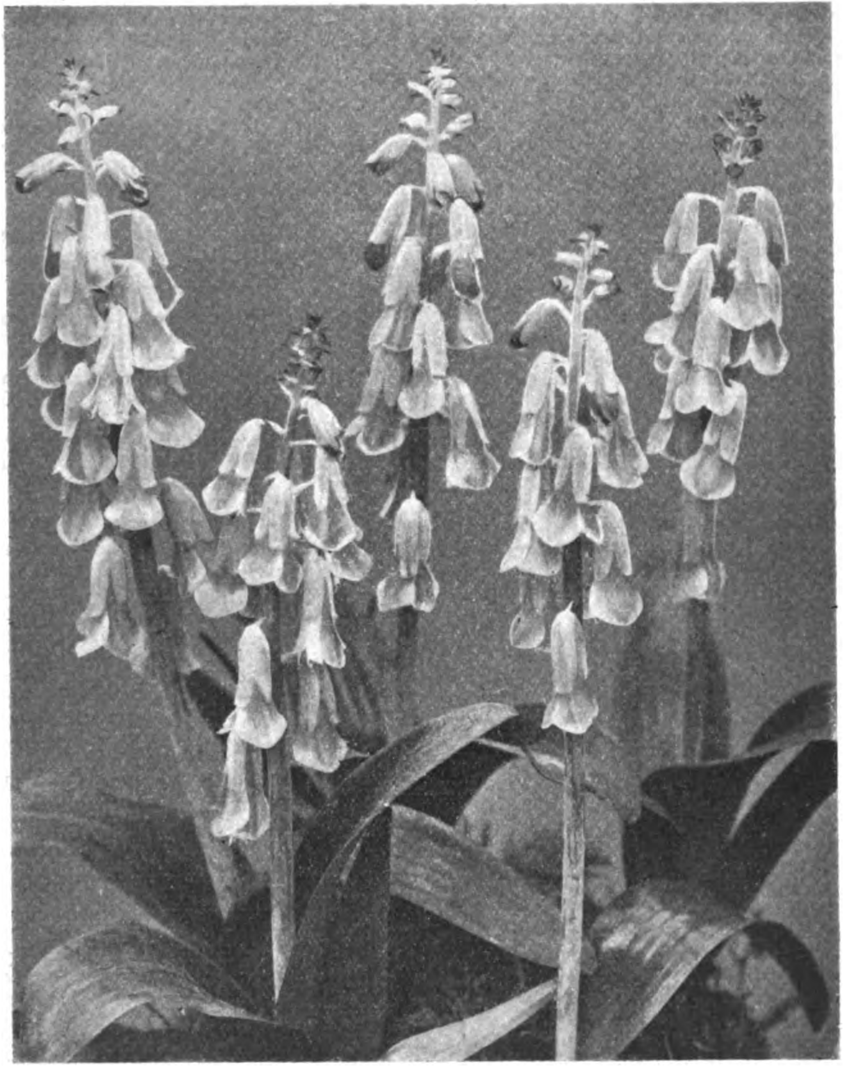
FIG. 56.—LACHENALIA SIAM: R.H.S. AWARD OF MERIT, FEBRUARY 26 (SEE P. 124).

FLORISTS' FLOWERS.

CHRYSANTHEMUM NOVELTIES.

Last autumn unusually large numbers of new varieties were submitted for award at the several meetings of the National Chrysanthemum Society. As these meetings are not attended by cultivators to any large extent, a few remarks as to the more striking sorts of the year, as they appealed to the writer, may be of interest to Chrysanthemum growers generally.

I cannot give the exact number of novelties placed before the committee from beginning to end of the season, but I should compute that nearly one hundred and fifty were forthcoming, and between thirty and forty gained the award of a First-Class Certificate.

It would be too much to state that all of these latter, even as seen, were of super-excellence; yet among them, undoubtedly, there were new kinds which will supersede many of those in cultivation and become standard sorts.

The raising of seedlings has, within recent years, kept pace with the increasing interest in the Chrysanthemum, and may, indeed, have had something to do with the latter. The remarkable summer and autumn of 1921 gave those who hybridise an opportunity that rarely occurs in this country.

It was possible in that season to ripen seeds from certain fine kinds that had not previously responded to the care of the grower. I refer to the better double Japanese type, for it is no great achievement to obtain plenty of seed in any year from the single type.

Of the novelties of 1923, I will refer first to the large exhibiting varieties. The variety Gigantic is incurving in shape, and a large bloom of noble appearance. The colour is light, pearly-pink; the florets are of medium width with extra substance. Monarch gives a perfect flower of the incurving Japanese type. It has exceptionally wide, thick florets coloured a bronzy-buff shade. Mrs. Harold Wells is a new white sort that compares favourably with any variety yet seen; and taking into consideration the remarkable constitution of the plant as well, its merits cannot be exaggerated. The blooms are white with a green tinge from early-formed flower buds, and in general characteristic the bloom resembles that of Mrs. R. C. Pulling. The new sort will be found easy to cultivate.

The bloom of Mrs. W. Seymour is, perhaps, hardly wide enough for the most fastidious, but the depth of the long, hanging florets is quite considerable, and the yellow shade is rich. Norman Davis is an important gain in the dark maroon section, and it has florets of greater length than any. The form of the bloom is recurving, and it is splendidly finished and large. I have not seen this variety growing, but the raiser informs me that it is quite easy to cultivate.

Sulphur Queen is a superb flower of the incurving Japanese type, yet compared with Mrs. R. C. Pulling, it is scarcely large enough, nor is the yellow shade so rich. The substance, however, combined with the free growth of the plant, will commend it to those who grow specimen flowers for the market.

The market grower of Chrysanthemums was well provided for in the novelties of last year. Gloriosa has blossoms of medium size, rich orange-bronze in shade, and has lasting qualities of the first order. The growth is free. This ideal variety for cut blooms was even better after it was established (November 1st) and the lovely sprays of brilliant bronze flowers were available up to near Christmas. The dark salmon-pink hue of Jean Pattison is very pleasing, and there is no doubt but that this fine novelty will advance quickly in favour. Lynette is a chaste and beautiful white variety, but it is unlikely to be purchasable this year. However, it is worth making a note of.

Among the so-called single Chrysanthemums, Chestnut Glory pleased me much. The colour is scarcely that which the name would imply—orange would be better. The blooms are of medium size and stand erect on the plant. Flame, in its excellent and red suffusions, is a noteworthy variety. The yellow shade in Mrs. W. C. Catlow variety is very rich, and the large, round-shaped leaves are an additional attraction. Although exhibited late in the year the variety, Mr. J. Barrell, in its bronzy colouring and lasting character of the flower, compares well with many of the new singles of the year. Nona is a charming white single variety. It has more florets than the old favourite Mensa, has the same perfect shape, and less centre or "eye"—a fault conspicuous in not a few of the novelties in singles seen for the first time. *H. S., Woking.*.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM TRIUMPHANS, ASHLANDS VARIETY.

RICHARD ASHWORTH, Esq., Ashlands, Newchurch, near Manchester, sends a flower of by far the largest and most perfectly-formed Odontoglossum triumphans we have seen. In shape it is of the same class as O. triumphans latisepalum referred to in *Gard. Chron.*, May 10, 1902, p. 314, from The Dell collection, but it has the rich colouring of O. triumphans Lionel Crawshay.

The ground colour is yellow, changing to white towards the centre, two-thirds of the sepals and petals being covered with chestnut-red blotches. The lip is broad in proportion to the other segments, and coloured Primrose-yellow with the typical Chestnut-red blotch in the centre. The variety ranks well with the best hybrids having a yellow ground.

ODONTOGLOSSUM W. E. BISSET. ASHLANDS VARIETY.

A FLOWER of one of the best shaped and richest in colour of the Odontoglossum Purple Emperor class is sent by Richard Ashworth Esq., Ashlands, Newchurch, Manchester. The flower, which has the segments overlapping and well displayed, is deep Tyrian purple, the margins being pure white and the petals having a broad white edge. The lip is coloured like the petals and with a crimped white margin and yellow crest. The original type of the cross with marble-blotched flowers was raised by Messrs. Armstrong and Brown between O. crispum Mossiae and O. Mars and it flowered in 1917. Mr. Ashworth's was between O. Mars and his famous O. crispum Britannia, which he purchased from Messrs. Low and Co. over twenty years ago and the main plant of which passed to Mr. Norman C. Cookson, through Messrs. Charlesworth, for one thousand guineas.

NOTES FROM AMERICA.

YOUR correspondent *G. L.* commenting on some good bedding Roses (p. 233, October 20, 1923), referred to the Queen Alexandra Rose. With me this variety shows little of the bicolor character it displays in England. When I first saw it exhibited it was a finely formed Juliet, but here it is just a red colour with a slight orange suffusion. The yellow reverse is wholly absent, due, I imagine, to the climate rather than the soil, for a large batch of maidens I saw growing in a nursery developed nothing but red flowers. My plant is on the Ragged Robin (Gloire des Rosamanes) stock, whereas those seen in the nursery were on the multiflora stock, the latter being a stock largely used in the Eastern States, while Gloire des Rosamanes is used on a big scale in California. Growers in the latter state are able, because of the mild climate, to grow Roses with less trouble than in the East, where the harder winters make it difficult to obtain a stand of more than 50% first class plants.

Considerable interest is being displayed just now in a stock classed as Rosa odorata, which was secured by the Bureau of Plant Industry some fifteen years ago from China. Quantities of this species have been distributed for that purpose, both under glass and in the open. This stock is remarkable for its easy propagation; cuttings root with the greatest ease and it is possible to graft or bud the cuttings and then insert them in the bed. Roots form, and the graft starts into growth almost simultaneously. It is even possible to bud right along the growths and when they "take," cut the stems in short pieces, each with its bud, and root them as one would Grape vine eyes. There is, however, some doubt as to the general merits of Rosa odorata; one Californian grower who propagates nearly half a million Roses in the open annually declares that it suckers outrageously, and for this reason he uses the Ragged Robin stock. He furthermore states that R. odorata is none other than a Rose which has been known in California for thirty years or more, as Maiden's Blush, while it is also known in the southern states as the Texas Wax Rose. Others, however, including the Departmental authorities, deny that it suckers and express some doubt as to its being the same as Texas Wax and Maiden's Blush. So far as I can judge, the Californian Maiden's Blush is not the old variety of that name which is related to Rosa alba.

I was at the Philadelphia Carnation and Rose show at the end of January, and it is unquestionably a fact that growers in England have not yet seen Souvenir de Claudius Pernet in perfection. Outdoors here, on maidens, the buds are apt to be malformed, "bull headed," but later flowers are good, and with me it does very well. But it is as a market variety that it has made its mark. Its selling price rivals even that of the famed American Beauty. At the Philadelphia Exhibition seven competitors showed fifty blooms each, the leader having stems over five feet long and the expanded blooms nearly six inches. This exhibit not only won the first prize in its class, but also a gold medal as the finest vase in the show, its nearest rival being America, which was shown by the same grower, the Florex Gardens, with stems nearly ten feet long. I visited the Florex Gardens at North Wales, Pa., and saw America towering up to eleven feet.

The exhibition referred to was almost wholly of commercial exhibits, that is, the Carnations and Roses were shown by cut flower growers. Only one private grower exhibited, and his Roses were not comparable to the giant examples of the commercial men. The latter, of course, grew the flowers specially for the show, most of the stems being the result of pinching the shoots on two or more occasions. Long stems are a big factor here, although, generally speaking, stems 18 inches or less are in greatest demand. To get the long-stemmed flowers, the growths have to be stopped (flower buds removed) one or more times, the top break being allowed to develop after pinching.

The new Templar as shown promises to be a first-class forcing red Rose, and, having seen it growing, I can vouch for its freedom of flowering. The blooms keep their colour and, while not of giant size, are large enough for any purpose, and have a pleasing perfume. The much-talked-of Sensation was not shown, the consignment being delayed on the rail, and arrived in an unfit condition. I have seen this novelty on one or two occasions; it is a fine big flower, but has the failing of many red Roses, of assuming a bluish tint as it ages. It is said to be more prolific than Hadley, which is the best red Rose we have.

I note in a recent issue that a mixture of sulphur and lead arsenate is recommended for black spot on Roses. In America this disease is a plague, both indoors and out. Indoors it is fairly well controlled by the use of copper solution, but a grower in the West reports great success by spraying with ordinary washing soda, 1½ ounce to one gallon of water, sprayed both under and above the foliage, the plants being washed with clear water after two or three days. I intend to try this spray on outdoor plants this season. The idea of using soda probably was prompted through its being recommended for mildew. This is an old-time remedy, and one that has been more or less forgotten. A year or two since, some western Rose enthusiast saw the remedy recommended in some old records, and presumably it was found effective for black spot, so much so, that it has been tried under glass. The high humidity of the northern Pacific Coast has been conducive to black spot on Roses under glass this winter.

Regarding the scentless Musk, Mr. Ascroft has no small task to find a scented form. So far as I can gather, the wilding as it grows in the West is quite scentless, so that the loss of perfume is certainly not due to a lack of some leaf-eating insect. As to Harrison's Musk surplanting the old Mimulus moschatus and thereby bringing about a scentless type, I can only state that when I grew Harrison's Musk twenty-five or more years ago it was a totally distinct form and had a perfume. I had some of the native Musk sent me last year, but as the sender remarked, it was quite scentless. *T. A. W*

LAW NOTE.

MARKET EMPLOYEE'S INSURANCE.

A case of considerable importance to market growers and their salesmen was heard at Brentford on February 19, when Messrs. J. T. Taylor, Ltd., Market Growers, of Isleworth, appeared in answer to two summonses issued by the Ministry of Health under the Unemployment Insurance Acts and the National Health Insurance Acts. Mr. Saffell from the legal department of the Ministry of Health appeared for the prosecution, while Messrs. Taylor were represented by Mr. Morgan Veitch, solicitor to the Federation of British Growers, who supported the defence.

Mr. Saffell in opening the case stated that the proceedings had been instituted by the Ministry of Health on the ground that the defendants had failed to pay any contributions due either for sickness or unemployment insurance in respect of their employee, Joseph Charles Turner, who acted as salesman of their produce at both Brentford and Covent Garden Markets. Although the defendants had at first offered to pay five years arrears, they appeared to have recently taken legal advice and declined to pay. He read a letter from defendants' solicitor offering to produce their books and to furnish a statutory declaration to the effect that the remuneration of the employee in question amounted to more than £250 per annum, but the Ministry preferred the case to be tried. He agreed that persons receiving more than the annual remuneration stated were not insurable, but the Ministry contended that this was not the case in the present instance.

Mr. J. C. Turner, called on subpoena as a witness for the Ministry, stated that he received a salary of £4 10s. per week, equivalent to £234 per annum. He acted as salesman for the defendants at the Brentford Market on three days of the week and at Covent Garden Market on the other three days. He had the assistance of Mr. Leonard Taylor during the summer. His duties, in addition to selling, included seeing to the delivery of the goods, making out tickets for empties and checking empties on their return. Occasionally he would assist in loading the motor lorry. Cross-examined, witness stated that he received additional remuneration, known in the trade as breakfast money, at the rate of £1 4s. per week. There was nothing to compel him to spend the breakfast money on meals and he could spend it in any other way or take it home, if he preferred to do so. He did not pay anything for travelling expenses as he went to and from the markets on defendants' lorry. His duties involved a certain amount of clerical work in connection with empty tickets and his principal work was that of salesman. He had the assistance of Mr. L. Taylor only during the summer, which was the busy season. It was no one's business to see how his breakfast money was spent.

Mr. Veitch submitted that this was the end of the case unless the Ministry of Health could satisfy the Court that the employee was a manual labourer. Their own witness had proved that his remuneration amounted to nearly £300 per annum. Mr. Saffell contended that this was not so. Breakfast money must be regarded as "expenses" or else as food supplied to enable the employee to do his work properly in view of the arduous nature of his duties during the early hours of the morning. As to the question of manual labour, there was evidence that the employee sometimes assisted to load up the motor lorry. He submitted that on the construction of the Acts the Court had no power to acquit a defendant in these cases, although they had the power to convict. If there was any doubt as to the conviction they must adjourn the case so that the Minister's ruling might be obtained as to whether the employee was a person liable to be insured or not.

Mr. Veitch submitted that this was an astounding proposition. The Ministry could not have the matter both ways, and if they sought the decision of the Bench they must abide by it, whether it was favourable to their contention or otherwise. The contention of the Ministry appeared to be that either the Court must convict or must refer the matter to the Minister for his ruling. It was impossible that this could have been the intention of the Act, and the Ministry were attempting to make a serious encroachment on the liberty of the subject. He expressed surprise that counsel for the Ministry had not assisted the Court by bringing to their notice the fact that the point at issue had already been determined by a decision of the Health Commissioners, who had decided that an allowance of 6d. made to a clerk for tea when working overtime was to be regarded as additional remuneration. Furthermore, it had already been held judicially that remuneration could be either "in cash or in kind," while in another case it had been decided by the High Court that a foreman was not to be regarded as engaged in manual labour merely because at the time when an accident occurred he was engaged in moving planks. He protested against the attitude of the Ministry throughout the case.

The Chairman stated that the Bench were unanimously of opinion that the contentions on behalf of Messrs. Taylor must succeed, and both summonses would be dismissed. Furthermore there was no ground for the suggestion of the Ministry that Messrs. Taylor had not acted reasonably or in good faith. Mr. Saffell stated that the Ministry desired to appeal and applied for a case to be stated to the High Court, to which the Chairman replied that he failed to see any ground for appeal, but the Bench were prepared to state a case if desired.

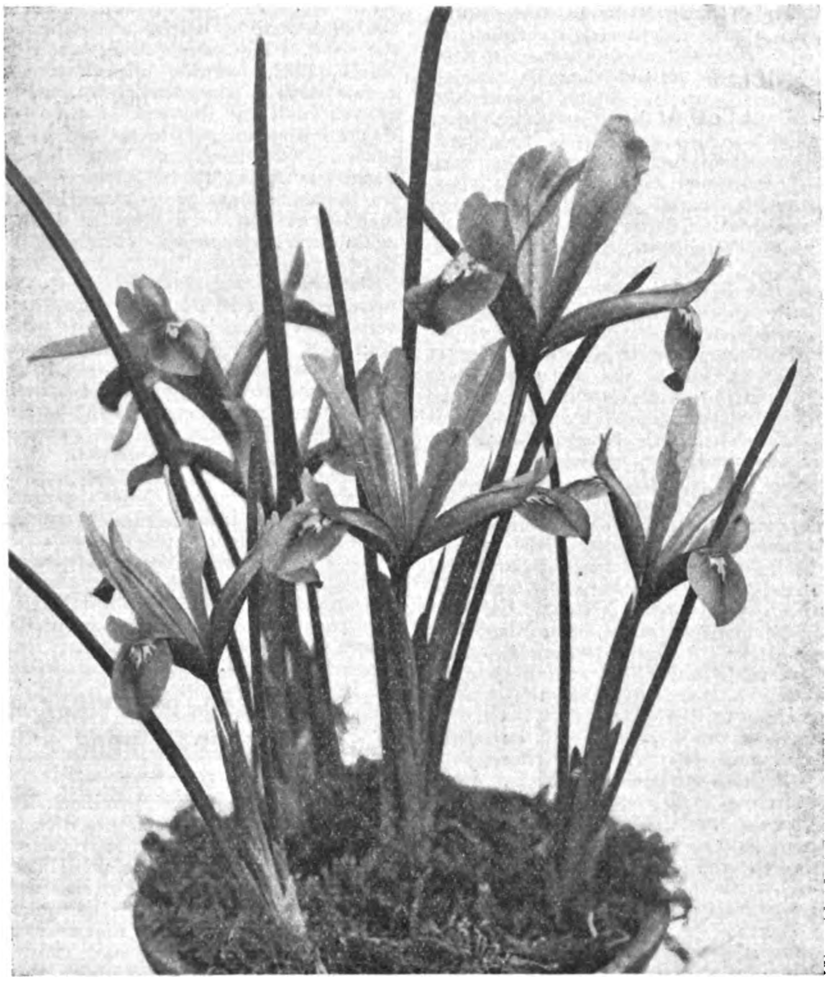

FIG. 57.—IRIS LITTLE BOY BLUE: R.H.S. AWARD OF MERIT, FEBRUARY 26. (SEE P. 124).

VEGETABLE GARDEN.

FORCING LETTUCES.

The best variety of Cabbage Lettuce, to supply salading from January until the end of April, is the black seeded Little Gott. It is the only variety that forms a heart under glass, without or with little ventilation. The seeds should be inserted thinly broadcast on or about October 5th in a very fine compost within a shallow frame and close to the glass. About the same time the winter quarters of the young Lettuce plants should be prepared, preferably in a sheltered corner facing south. Shallow frames made of boards eight or nine inches wide with a 2-inch slope at the front and close at each end, will be found adequate for the purpose. Place 3 inches or 4 inches of good soil in the frame, and on this a 2-inch layer of good compost consisting of half loam and half well decayed manure, broken as finely as possible to facilitate the transplanting of the seedlings late in October or early in November.

The plants should be pricked out 2 inches apart, disregarding any weaklings, and the lights placed on the frames. The only attention required is ventilation if the growth is too rapid, and shelter from severe frosts.

To obtain a succession of Lettuces over four months the crop should be divided into three batches. The first lot is obtained by cutting half-grown Lettuces direct from the nursery bed from early in January until the second batch is ready. The plants forming the succession should be transplanted on hot-beds early in January and also early in February to continue the supply of well-hearted Lettuces from early in March until the middle of April. The succession will then be carried on by the third lot of plants set in cold frames from the nursery bed during the last week in December. The number of plants to be grown to supply the necessary requirements will have to be computed, also the number of frames and lights at disposal for the work, and allowance should be made for losses through slugs or decay. Hot-beds may be made in brick pits or fixture frames; failing these, the beds may be made and shallow frames placed on them. They should be made 10 inches or 12 inches thick and formed of half good, fresh, strawy horse manure and half old manure or leaves. The materials should be well trodden and covered with a layer of rich compost. Keep the frames covered until the materials begin to ferment and the soil feels warm to the hand. The Lettuces should then be planted 6 inches apart; keep the lights closed and cover them at night in frosty weather. No watering or ventilation is required. Should fermentation be too rapid—a very exceptional occurrence so early in the year, the covering at night may be dispensed with during times of light frosts.

Given a rich compost, and a moderate heat as produced only by the fermentation of manure, the Lettuces will respond quickly to this gentle forcing, and when kept free from decayed leaves are often ready for cutting within six weeks of planting. Market growers clear a batch in a very short period, but in private establishments the season may be lengthened by giving the plants a little ventilation in genial weather when they are ready for cutting.

The method of growing Lettuces in cold frames is as follows. Towards mid-December a piece of ground is well manured and dug. Similar frames as those used for nursery quarters are placed on it and the ground is top dressed with 3 inches or 4 inches of rich compost. The lights should be kept closed until planting time, ten days or fifteen days later. A fixture frame may be used, if preferred, and filled with very good soil, but it is essential that the plants should be close to the glass.

The Lettuces are set seven or eight inches apart and they receive the same treatment as those grown on hot beds. From early in March a little ventilation is given in suitable weather, and the amount of fresh air is increased as the growth advances: watering is required early in April.

Attention must also be given to guard against late frosts, which damages and spots the leaves.

This batch is ready about the middle of April and produces the best Lettuces.

To fill up the gap between this and the first batch from the outside, growers sow and grow as explained for the cold frames. Lettuce Passion, black seeded, is hardier, and requires more room at the final planting and more ventilation than Little Gott. The lights should, however, be removed by the third week of April, as this sort will not form hearts under glass. *P. Aquatias.*

FRUIT REGISTER.

CRIMSON SPORT OF APPLE COX'S ORANGE PIPPIN.

During the season of 1917 a bush Apple tree of Cox's Orange Pippin belonging to Mr. Harris, Ballingham, Hexforth, produced, on one branch, about nine fruits of a bright crimson colour. This being so noticeable to the owner he marked this said branch, and the following April grafted a headed-back tree with some of the scions. Since then he has grafted several trees, whilst the first and second season's trees have produced fruits exactly as seen on the mutated branch. Mr. Harris considers that this highly coloured fixed sport will have a commercial value. The trees of this crimson variety make stronger wood than the original, and all-in-all, I believe the variety will prove a great acquisition. *Pomona.*

THE FRUIT GARDEN.

BIG BUD ON BLACK CURRANTS.

At the suggestion of Sir George Watt, Chinsura, Lockerbie, botanist, and a director of the Institution, the management of the Drichton Royal Institution, Dumfries, conducted a series of experiments, having for their object the destruction and eradication of "Big Bud" in Black Currants. The experiments were carried out by the gardener of the Institution, Mr. E. Joss.

The system followed was that suggested by Sir George Watt, and consists in covering the soil about the bushes with straw and firing it, afterwards cutting down the bushes to a height of six inches above the soil. The first firing took place in March, 1922, and the bushes were cut down a few days afterwards. They made vigorous growth and, by the end of the year, there was no appearance of the big bug on the shoots. In March of 1923, however, one bush was found to be affected and it and the adjacent ones were treated in the same manner as had been done in 1922. These, again, made vigorous and healthy growth by the end of the year.

The unaffected bushes showed signs of bearing a good crop of fruit, but, unfortunately, the spring last year proved very cold and sharp frosts were experienced late in the season with the result that the fruit failed to set, and a disastrous storm in May caused the racemes to fall to the ground.

All the bushes are at present in a vigorous and healthy condition. A suggestion has been made by Sir George Watt that, prior to the firing of the bushes, the ground about the bushes should be lightly hoed to a depth of from two to three inches, as he is of opinion that the mite hibernates in the soil. The experiments are the object of much interest and the plot has been visited by members of the Scottish Board of Agriculture. *S. A.*

FURNISHING OLB VINES WITH YOUNG RODS.

Growers who are troubled with mealy bug on their vines, or where the latter show any kind of weakness, should select a strong shoot from the bottom spur of the old vine and train it up on top of the existing rod where it would get all the light and sunshine available. If the vinery roof is about sixteen feet in length another young growth may be trained in the same manner half way up the vinery from the old rod, in case the existing one is not strong enough for the bottom growth to develop more than seven or eight feet in length. This would ensure a young rod the whole length of the roof. After the crop is taken from the vines the top half of the old rod should be cut down to the spur just above the young growth. The following year it would be necessary to continue the growth of the lower half up the remainder of the roof. The same year, after the harvesting of the crop is completed, the existing rod may be cut clean away, leaving the young rod to take its place for fruiting the next year, also leaving the bottom spur for selecting the young growth annually. By this system all ugly spurs are done away with and it gives the grower an opportunity to keep the vineries free from mealy bug. The rods need no scraping after they have been pruned: a rub with the hand will remove the loose bark and with the annual cleansing will help to keep the vines healthy. By this system a great deal of time and labour will be saved and, in addition, many fine berries and bunches will be obtained, while it will make no difference to the cropping of the vines, provided the border receives proper attention. I have practised this system of growing vines for a number of years with good results. *E. Neal.*

HOME CORRESPONDENCE.

Pear Doyenné d'Ete.—I was interested to learn the origin of Pear Doyenné d'Ete or Summer Doyenné from *Pomona's* note on this variety in *Gard. Chron.*, p. 66. I believe it is the least known and cultivated variety. I well recollect the first tree I saw was growing on a south wall in a garden when I started my professional career in Angelsey, a county in which fruit is very scarce. It was recommended to the owner by the late Mr. Owen Thomas as a variety worthy of a place in every garden. I have worked in and visited many gardens since then but never came across this early Pear until I settled down here in 1903, when I was surprised to come into possession of a fine, healthy old specimen which I imagine is at least seventy-five years old. It has produced an annual crop of six and seven bushels; in 1915 it produced thirteen bushels. Last year it took a well earned rest from fruiting, as, I think, most other Pears did. Although of considerable age and never fed only by nature, my tree makes growths of four and five feet on the upper branches and forms fruit spurs on the lower ones. When the fruits are hanging in clusters of fours and fives they look like ropes of Onions along the branches. Many gardeners have seen the tree here but not one had even heard of the variety before, and I fail to find it catalogued. I find it a very profitable variety, the fruits ripening generally about August Bank Holiday and earlier if the season is hot, as in 1921. It sells readily wholesale at 15s. per bushel, and retails at 6d. per lb.; the fruits average three and four to the pound, and they are far superior in every respect to the French William's Bon Chretien, that are sold at that time. I would warn any reader who possesses this variety not to indulge in the fruits too freely, as I did in the hot season of 1921, when I had to pay the penalty of having hiccough for three days and had to consult my doctor. I should like to hear what other correspondents have to say of the origin and merits of this Pear. *Thos. E. Furnell.*

Standardized Plant Names.—Our American cousins are amazing folk. The Germans lost the war because they had no sense of humour, and the Americans seem to have lost their humour since they won it. Ford motor cars may, perhaps, be standardized until they become like baths, which everybody wants though nobody likes to be seen in; but plant names cannot be treated in the same way. We do not want them standardized in this way and we cannot see any advantage in them when they have undergone the change as in *Standardized Plant Names*, reviewed in the *Gard. Chron.* of January 19, p. 34. It may be all very well to go out into our garden at this time of year and find the Leopard Iris in flower at the foot of the Leatherleaf Hollygrape, but it will be some time before we remember that these are the standardized names of Iris stenophylla and Berberis Bealei. When the Iris succumbs under the burden of its new name we can cover the ground with Common Pussytoes. We have all of us heard of Mr. Pussyfoot, but few will recognise under this new name the well known Antennaria dioica. Jazz music is said to hail from the Southern States and to have developed out of Negro folk-songs; but it is a hard fate for Iris hexagona, which comes from the same country, that its name should now be changed to the Dixie Iris; and, if one of the best of all Viburnums, V. Carlesii, is to be renamed the Fragrant Viburnum, what name are we going to give to V. fragrans, which is now showing us its sterling merits as a garden plant? Disciples of Mr. William Robinson have tried to follow his example in using English names for every plant and, when they have at last grown accustomed to calling Buddleia globosa, the Globose Buddlebush, they now find that their efforts are in vain and that they must call it the Globe Butterflybush and that Buddleia variabilis is now to be called the Orange-eye Butterflybush. Physalis Bunyardi becomes the Bunyard Groundcherry and Zauschneria californica, the Hummingbird-Trumpet. Even Wistaria is not allowed to keep its name but becomes, under American rules, Kraunhia. What possible advantage there can be in renaming Eremurus himalaicus the Himalayan Desertcandle, it is hard to see; or the variegated form of Euonymus japonicus, the Giltedge Burningbush, when we all know that Euonymus is the Spindle-tree. It is hard, too, to see what is gained by changing the name of Pentstemon ovatus to the Eggleaf Pentstemon and that of P. puniceus to the Scarletfunnel Pentstemon. The amount of work that must have been put into the compilation of the volume is enormous, but it remains to be seen whether the result will prove of the slightest use either to gardeners or to the horticultural trade, for whose benefit, apparently, it was undertaken. *Nomenclator.*

Cedars of Lebanon (see p. 325, vol. lxxiv.)—In reply to Prof. A. Henry's notes and queries on the famous Cedar Groves of Mount Lebanon, I send the following information recently sent me by Prof. A. E. Day, of the American College, in Beirut. "The Cedar grove at the head of the Kadisha Valley in Lebanon was fortunately uninjured during the war . . some of my friends were there last summer and reported the grove to be untouched. People are now forbidden to camp in the grove, but there is a tent-hotel outside during the summer. I am told that young trees are being encouraged to grow about the grove. The Cedar groves at Ayn-Zahalta and Bärük were also uninjured, though a big Oak grove below the Bärük Cedars was cut down by the Turks during the war. *The Gardeners' Chronicle* states that the snow does not leave the basin in which the Kadisha grove is situated before the end of July or beginning of August. I have been there in April when there was eight or ten feet of snow on the ground, and in July when there was no indication of recent snow. I am sure that it must completely disappear in May. Drifts of course remain on the mountain above during the whole year." It seems, therefore, that not only have the Cedars survived the risks of the war, but are better preserved than formerly, and stand a great chance of regeneration. *Douglas Carruthers.*

Colour in Cooking Apples.—*W. T.* (p. 82), asks for opinions as to whether colour is any recommendation to a cooking Apple for commercial purposes, with special reference to the variety Red Victoria. In my opinion, a high colour is no advantage, but rather the opposite. If the ordinary green Early Victoria and Red Victoria were shown in a shop side by side, and offered as cooking Apples at the same price, I do not doubt that, nine people out of ten would choose the green. I do not say that a certain amount of colour matters, so long as the Apple still looks like a cooker. For instance, Bramley's Seedling, although quite highly coloured from some districts, never looks like anything but a cooking variety, chiefly because of its size and shape; and a coloured sample sells just as well as a green sample. But when the colouring is delicate, and makes the Apple look like a dessert variety, people fight shy of it for cooking purposes. I find that people are afraid that an Apple will not cook well if it is a dessert variety, or looks like one. The worst Apples to sell are those that, in size and colouring, appear to be suitable for dessert, and yet are only of cooking quality. Duchess of Oldenburg is an instance. Other coloured cooking Apples that seldom realise a good price are The Queen, Bismarck, and Gascoyne's Scarlet. The most curious thing, however, is the prejudice of the public against a yellow cooking Apple, such as Royal Jubilee when ripe. *Market Grower.*

NOTICES OF BOOKS.

Rhododendrons: their Names and Addresses *

The author of this book presents a list of close upon seven hundred and fifty species of the genus Rhododendron arranged in alphabetical order. A brief description is added, where possible, to each species, giving the name of the discoverer, the place, altitude and year it was found, followed by the height of the shrub, the colour of the flowers and the series to which the particular species belongs. Such information is generally included in about twenty words.

The addresses, we presume, are the appended references which direct the reader to *Notes from the Royal Botanic Gardens, Edinburgh*; *Transactions and Proceedings of the Botanic Society of Edinburgh*; *Rhododendrons*, by J. G. Millais, and a *Monograph of Azaleas* by E. H. Wilson and Alfred Rehder. In the many instances to which the reader is referred to Millais' work we should have liked to have seen the "address" given a little more definitely and the number of the page included. A typical description is as follows:—nigro-punctatum, *Bureau et Franchet* (marked with black spots). Discovered by Prince Orleans, 1890, Mts. of Szechuan, W. China. Alt. 10-15,000 ft. Shrub 3-4 ft. Flowers violet purple. Lapponicum series. Millais.

The book will be of value to those particularly interested in this great plant genus, as the publication may be carried in the pocket—it measures but six-and-a-half by four inches and is about half an inch thick—and is printed on one side of the paper only so that additional notes may be incorporated. As there are no illustrations or diagrams we consider the price of the book very high.

TRADE NOTES.

We have received from Messrs. Höntsch and Co., greenhouse boiler makers of Dresden, a dainty little diary published by them for the use of their customers, and containing, besides the usual diary material, a great deal of useful information on horticultural matters. At the beginning of each month, a summary of the weather to be expected is given, based on meteorological records for the past hundred years; this, though naturally having no prophetic value, is useful as a rough and ready guide. Useful hints are given for the work to be done during the month, and besides these, there are a number of articles of varying lengths, some rather too technical to interest many gardeners, but some of wide utility, for instance, on what plants will succeed in shade; how to measure areas of various shapes: which birds are destructive and which beneficial in a garden; and one which would no doubt be of great value to a German gardener, consisting of a table of the measures formerly in use in the different states with their modern metric equivalents. This book is nicely bound in stiff grey paper, with a pencil at the side; but it does not look durable enough to withstand a year's usage in and out of a gardener's pocket.

We are informed by Messrs. Richard Melhuish, Ltd., 50, 51 and 84, Fetter Lane, E.C. 4, that there has been a general reduction in the price of garden tools, and that they will be pleased to forward revised price lists to any readers upon application.

CATALOGUES RECEIVED.

Perry's Hardy Plant Farm, Enfield.—New and rare Alpines, Perennials, and Water Lilies.
William Yandell, Castle Hill Nurseries, Maidenhead.—Chrysanthemums and Violas.
Tillie, Whyte & Co., 12, Melbourne Place, Edinburgh.—Seed Potatos.

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Friday, February 15: *Committee Present:* The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, A. Coningsby, D. A. Cowan, J. Cypher, A. G. Ellwood, J. Evans, G. Giles, Capt. W. Horridge, J. Howes, A. Keeling, D. Losh-Thorpe, E. W. Thompson, and H. Arthur (Secretary).

First-Class Certificates.

Odontoglossum Dodeham var. Perfection (*harvengtense* × *Phillipsianum*), a large, well-shaped flower; the sepals and petals are yellow with rich chocolate blotches; the lip is white with chocolate markings. *Cypripedium Marne, West Point var.* (*Alcibiades illustris* × *Beryl*), a large flower of good shape, the dorsal sepal being four inches across with a broad margin and green base with ruby spotting. From S. Gratrix, Esq.

Miltonia William Pitt var. The Prince (*M. Isobel Sander* × *Bleuana var. Reine Elizabeth*), a striking flower of rich claret red; the large lip is of a paler shade on a white ground with the mask prettily rayed. From Capt. W. Horridge.

Odontoglossum luridum, Loshville var. (*Olympia* × *Harryana*), a large flower of rich mahogany brown colour; the broad lip is white with reddish-brown markings From D. Losh Thorpe, Esq.

Odontioda Coronation, Haddon House variety, a beautiful form of the type with large flowers. From P. Smith, Esq.

Awards of Merit.

Cypripedium Sir William Chance var. Viking; C. Frederick W. Sander; Odontoglossum Her Majesty var. Rubric; O. crispum var. James Wood. From S. Gratrix, Esq.

Odontoglossum Pharo (*parentage unknown*). From Mrs. Gratrix.

Cymbidium Diana var. Pandora. From Capt. W. Horridge.

Laelio-Cattleya Minos, var. Rubens (*L.-C. Rubens* × *C. Tityus*). From P. Smith, Esq.

Cypripedium Cappa Magna var. Fred. Sander Cardinal Mercier × *Nubia*). From Messrs. Sanders.

Groups.

A. Hanmer, Esq., Buxton (gr. Mr. G. Giles), staged a group to which a Gold Medal was awarded.

A Silver-gilt Medal was awarded to S. Gratrix, Esq., West Point (gr. Mr. J. Howes), for a group in variety.

Messrs. Cowan and Co., Southgate, staged a group to which a large Silver Medal was awarded..

A large Silver Medal was awarded to Messrs. J. Cypher and Sons, Cheltenham, for a miscellaneous group.

Friday, February 29: *Committee Present:* Messrs. R. Ashworth (in the chair), A. Coningsby, D. A. Cowan, J. Cypher, J. Evans, Capt. W. Horridge, J. Howes, A. Keeling, D. Losh Thorpe, E. W. Thompson, and H. Arthur (Secretary).

First-Class Certificates.

Laelio-Cattleya Hassallii alba magnifica (*L.-C. Britannia alba* × *C. gigas Frau Melaine Beyrodt*). A fine flower with pure white sepals and petals, the well-formed lip coloured Tyrian-purple with a white margin and yellow throat. From Mrs. Gratrix.

Odontoglossum crispo-Solon var. Helma. The flower is of good shape: the sepals, petals and lip are heavily blotched with crimson on a white ground. From P. Smith, Esq.

Award of Merit.

Dendrobium Brymerianum giganteum; D. Electra magnifica (*Rolfiae* × *Salteri*) *and Cypripedium Perseus, var. Venustum.* From S. Gratrix, Esq.

**Rhododendrons: their Names and Addresses*, by E. H. Wilding, pp. 105. Price £1 1s. net. Sifton, Praed & Co., Ltd., London, 1923.

Groups.

S. Gratrix, Esq., West Point (gr. Mr. J. Howes), was awarded a Gold Medal for a group of Orchids.

A large Silver Medal was awarded to Messrs. J. Cypher and Sons, Cheltenham, for a group in variety.

READING AND DISTRICT GARDENERS'.

At the fortnightly meeting of this Association held on the 25th ult., the President, Mr. Councillor Frank E. Moring, presided over a good attendance of the members. The subject for debate was, "The Forcing of Strawberries," and it was introduced by Mr. H. H. Cook, Lecturer in Horticulture, Reading University College, Reading. Mr. Cook referred to the importance of obtaining fresh stocks, the need for early planting and the encouragement of the plants to form runners by the end of June. He dealt with composts, potting, removal of side crowns, housing, picking, packing, varieties, pests and diseases. An exceedingly instructive discussion followed the lecturer's remarks.

In the competition for three flowering plants in pots, not exceeding six inches, some excellent specimens were forthcoming. The first prize was awarded to Mr. F. Townsend, Hillside Gardens, Reading, the second to Mr. A. W. Gower, Calcot Grange Gardens, and the third to Mr. W. Broomfield, Cliffe House Gardens, Mapledurham. In the non-competitive section, Mr. A. B. Wadds, The Gardens, Englefield, staged a splendid collection of Apples (First Class Certificate). By the kindness of Mr. J. H. Benyon, the fruits were sent to the Royal Berkshire Hospital. Mr. F. Townsend exhibited plants of great interest in Primula calciphila, which is regarded by some as the original form of Primula sinensis. Three new members were elected.

Obituary.

Roger Leigh.—The death of Mr. Roger Leigh, late of Barham Court, Maidstone, occurred on Friday, the 29th ult., in his eighty-fourth year. He was the only son of Mr. Thomas Yates, of Hindley, and was adopted by Sir Robert Holt Leigh, Bt., of Hindley Hall. He assumed the name of Leigh in 1850, and the estates of Sir Robert ultimately passed into his possession. Mr. Leigh was a keen gardener, and at one time his gardens at Barham Court were amongst the most interesting in the country. His gardener, Mr. J. G. Woodward, was a very successful exhibitor of hardy fruits in this country in the late eighties, and Peaches and Pears of unusually fine quality are still produced at Barham Court by Mr. Woodward. At one time some of the best trained fruit trees in Great Britain were to be seen in this Kentish garden; they were fashioned in all manner of shapes, after the French style, but they have been put to a more utilitarian purpose in recent years, and allowed to grow untrained, yet most of them bear fine crops annually.

GARDENING APPOINTMENTS.

Mr. O. Twitchett, for the past two-and-a-half years Gardener to Captain E. Ramsden, M.F.H., Edlington Hall, Horncastle, as Gardener to Viscountess Grimston, Gorhambury, St. Albans. (Thanks for 2s. 6d. for R.G.O.F. Box.—Eds.)

Mr. R. Ward, for the past fifteen months Gardener to Wm. Angus, Esq., The Manor, Tendring, Clacton-on-Sea, and previously Gardener to Sir Joshua Rowley, Bart., Holbecks, Hadleigh, as Gardener to Sir Frederick G. Rice, Great Bromley Lodge, Colchester. (Thanks for 2s. for R.G.O.F. Box.—Eds.)

Mr. T. J. Brownjohn, for the past nine years Foreman at Elvetham Hall, as Gardener to The Hon. Mrs. Anstruther Gough Calthorpe, Elvetham Hall, Hartley Wintney, Hampshire.

ANSWERS TO CORRESPONDENTS.

Acetylene Gas Residue: *T. A.* The residue after obtaining gas from calcium carbide contains a very high percentage of lime and is useful for digging in soil which is deficient in this compound. It should be used at the rate of about one pound per square yard, and fruit trees, particularly stone fruits, will benefit by the dressing. It may be applied either in late winter or early spring and should be spread on the ground for a week before digging in. The refuse should not be applied to grass land unless you desire to encourage the growth of Clover.

Aegle sepiaria: *H.* We have not heard of this interesting Chinese and Japanese shrub being propagated by grafting. The only possible stock would be Citrus (Orange) and this is not hardy. We suspect that the shoot in question rising from the base, with evergreen leaves, is simply a very vigorous growth, which, owing to its strength, has retained the foliage. You should soon be able to tell if the shoots are those of Aegle. If so, it will depend on the shape of the bush whether you wish to retain the growth, or a portion of it.

Clover on Lawn: *H. A. P.* Clover is a very troublesome weed and quickly destroys the grass on lawns. The patches should be dealt with as soon as they are noticed. It is not possible to clear them out by hand; the best course to adopt is to cut the mass closely with shears and give a good dressing of lawn sand. If, however, the Clover has taken possession of the lawn, dress the entire area with sulphate of ammonia at the rate of one pound per square rod. Do not apply lime, or any manure containing lime, as this encourages the growth of Clover.

Diseased Arum Lily: *A. P.* The rotting of the Arum corms is due to the presence of Bacillus aroideae. The plants, after they have been allowed to dry off, should be shaken out of the pots and all the soil removed. The corms should then be washed and all infected parts cut out with a sharp knife, sterilising the knife blade by dipping it in boiling water after each corm has been so treated. The corms should then be placed for four hours in a 2% solution of formaldehyde, made by mixing one part of 40% formaldehyde with forty-nine parts of water. It is advisable to sterilise both pots and soil used for potting the treated corms.

Grubs for Identification: *M.A.* The grubs are the larvae of a fly—probably one of the Bibionidae of which one member, the St. Mark's Fly, is fairly common. This fly may be frequently seen on the wing in early spring and often visits the flowers of Pear trees. Most of the insect's life, however, is spent in the ground in the grub form. Eggs are laid during the summer. The young larvae are said to feed on the roots of plants, several definite cases having been recorded. It seems more probable, however, that they are in the main, feeders on organic matter, and are, therefore, particularly liable to be brought in with dung. Authorities differ as regards the amount of damage caused by the grubs. On the whole, the balance of opinion is that they are in the main consumers of dead plant food, but occasionally may attack living roots.

Lawn Sand: *F. M. F.* A good recipe for making lawn sand is to mix equal parts by weight, of nitrate of soda, sulphate of ammonia, and finely powdered sulphate of iron. These ingredients should be as dry as possible and free from lumps. The mixture is then thoroughly mixed with fine sand in the proportion of one part of mixed chemicals to five parts of sand. Lawn sand should be stored in tins or barrels until required for use when it should be scattered lightly over the turf in the usual way.

Manettia inflata (syn. M. bicolor): *J. A. J.* Your specimen is from an old garden plant, generally known in gardens by the name of Manettia bicolor; it belongs to the natural order Rubiaceae, and is a native of South America, having been introduced from the Organ Mountains, so long ago as 1843. It is a small, twining plant, and is very useful for training up wires or pillars in the greenhouse; potted into eight-inch pots with the growths trained round neat supports it makes a fine specimen for the greenhouse, and produces its flowers, more or less, all the year round. It is easily propagated at any time by means of cuttings, which root freely in a close case, with slight bottom heat at command. In their younger stages the plants should be grown in an intermediate temperature; their successful cultivation presents no difficulty.

Names of Plants: *Vandenberg.* 1, Holboellia latifolia; 2, Elaeagnus pungens, 3, Sequoia sempervirens; 4. Quercus fulhamensis; 5, Quercus dentata; 6, Thuya plicata; 7, Cephalotaxus drupacea; 8, Pittosporum Tobira; 9, Ceanothus dentatus; 10, Veronica speciosa var.

Tomatos Damping Off: *A. C. F.* The young plants are affected with the "damping off" fungus. It would be wise to burn all plants showing signs of infection and to raise a fresh batch of seedlings. Care should be taken to start with clean soil and sterilising either by steam or with a 2% solution of formaldehyde will render it free from the organism. Seed boxes and pots should also be sterilised. The soil may again become contaminated by chance infection and as a precaution the young plants should be watered with "Cheshunt Compound," which is prepared by thoroughly mixing two parts of copper sulphate, finely ground, with eleven parts of fresh, powdered ammonium carbonate. The solution is prepared by dissolving one ounce of the dry mixture in two gallons of water. Plants may be watered with the solution without injury and it is advisable to water the soil in the seed boxes immediately after seed sowing. Another application should be given when the plants are potted and sufficient should be applied to ensure that the soil is thoroughly wetted. When the plants are ready for planting out in the beds, the hole, made for the reception of the plant, should be watered with about one pint of the solution.

Tulips not Flowering: *J. C. W.* The Tulips are free from disease and it is not possible to give any definite reasons for their failing to flower. The bulbs are of good size, but the root action is very poor, and as a result flower development has been retarded.

Weed of Lawn: *G. B.* The weed is Self-heal (Prunella vulgaris), and is usually frequent on lawns which are in need of drainage. The bad patches should be cut out and either sound turf relaid or seeds sown. If, however, the weed is present in large quantities, the lawn should be dressed with lawn sand, according to the directions given by the makers, or with sulphate of ammonia applied at the rate of one pound per square rod.

Communications Received.—Anxious.—Gardener, Brighton.—A. S.—R. E. A.—C. A. M.—W. A.

SCHEDULE RECEIVED.

Sussex County Agricultural Society's Show to be held at Eastbourne on Wednesday and Thursday, July 16th and 17th.—Hon. Secretary, Mr. W. Goaring, County Hall, Lewes.

THE

Gardeners' Chronicle

No. 1942—*SATURDAY, MARCH* 15, 1924.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 44·1°.

Actual Temperature:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 12. 10 a.m.: Bar, 30°; temp. 47° Weather—Cold and bright.

Green Algae and Nitrogen Fixation.*

IT is only too well-known to intensive cultivators that lack of supplies of nitrogen compounds tends to limit crop production. For one reason or another the wastage of available nitrogen compounds from the soil is great. Winter rains leach out much of the soil nitrates left after the growth of plants ceases in the autumn. The crops themselves take no inconsiderable toll of soil nitrates and in so far as they are removed from the field carry these hoards of nitrogen with them. Certain bacteria inimical to cultivators break down nitrates and so tend to deplete the soil. On the other hand as is now well-known there exist natural means whereby the supply of nitrogen either in organic form or as nitrates is being continually augmented in the soil. The nitrifying organisms intervening at a certain stage prevent the complete loss of the organic nitrogen from the bodies of plants and animals undergoing decomposition in the soil. As by slow and ordered stages the organic nitrogen compounds contained in animal and vegetable debris undergo decomposition by bacterial and fungous activity, there comes a stage when all organic nitrogen compounds have disappeared and given place—in part at least—to ammonia. It is at this stage that the soil nitrifying organisms intervene and converting ammonia to nitrates add to the store of nitrogenous food in the soil. In a yet more direct way—by the agency of nitrogen-fixing bacteria the supplies of nitrogen compounds in the soil are replenished. These nitrogen-fixing organisms, which occur in soil and in the sea, possess the power of bringing gaseous nitrogen – of which large stores occur in the atmosphere—into combination with other elements. At their death they bequeath their accumulated nitrogen compounds to the soil and these compounds may later go directly to nourish green plants or undergo change into substances which serve a like purpose. Most remarkable of all is the nitrogen fixation which goes on in the Leguminoseae. So soon as the roots of these plants penetrate into the ground they are entered by certain bacteria-like micro-organisms. As the result of the irritation set up by this beneficent infection nodules are formed. In the nodules the bacteria-like organisms increase and multiply. By their activities organic nitrogen compounds are produced, the nitrogen of which is obtained from the air circulating around the roots. At the death, and perhaps before the death, of the infecting micro-organisms (Rhizobium leguminosarum), the accumulated nitrogen compounds are available for the nutrition of the Leguminous plant which harbours them. In view of the great importance of nitrogen to the crops of the world and because of the remarkable peculiarities of Leguminous plants, it has often been suggested that other groups of green plants possess the power of "fixing nitrogen." Among these suggestions is one of no little agricultural importance, namely, that green Algae possess these powers. It is known that green Algae of many kinds live habitually in cultivated soil and if they in fact possess this power they are to be reckoned as an asset to agriculture. The difficulty of proving or disproving the suggestion is considerable. For green Algae usually bear in their mucilaginous walls large numbers of bacteria and therefore must be rid of these organisms before they may be used for experimentation into their powers of nitrogen-fixation. Many claimants on behalf of the powers of Algae to fix nitrogen have neglected this source of error and therefore their claims may be dismissed as "not proven." Others, however, who have worked with green Algae is pure cultures have claimed to prove that these plants do indeed possess the power of fixing free nitrogen. In order to settle the matter once for all Miss Bristol and Dr. Page of Rothamsted undertook "a critical enquiry into the alleged fixation of nitrogen by green Algae." Their experiments, carried out with meticulous care and on a large scale, show that at all events the species of Algae with which they worked do not possess the power of fixing free nitrogen. The subject is one of such importance that it is to be hoped that the authors, in spite of the laborious technique which it requires, will extend their investigation to other forms of Algae and also take up the no less important question whether certain green Algae may not, like Leguminous plants, live symbiotically with nitrogen-fixing bacteria and by material encouragement facilitate the good work of those bacteria.

M. Charles Pynaert.—We learn that the French Government has recently conferred upon this well known Belgian horticulturist the Cross of Officer of the Mérite Agricole. M. Pynaert has many friends in England who will join with us in offering to him our hearty congratulations.

French Chrysanthemum Society.—The next Congress and Exhibition of the above Society will be held early in November, the exact date to be fixed later. It will take place at Rennes, the local horticultural societies joining together for the purpose of making as important a display as possible.

Flesh Collapse in Apples.—The preliminary report by Messrs. N. McClelland and L. W. Tiller at the Cawthron Institute, Nelson, New Zealand, on the causes of flesh collapse in fruit will be of interest to fruit growers. Experiments were made with Sturmer Pippin to ascertain the influence of the following factors in inducing flesh collapse;—(a) maturity; (b) soil; (c) packages; (d) delayed storage; (e) storage conditions, and (f) carbon-dioxide. The figures given show that differences exist between the keeping quality of fruit at different stages of maturity, but it is suggested that immature fruit should be picked with caution as the market value may be detrimentally affected. Delayed storage of Sturmer Pippin Apples is dangerous, particularly as the sheds in which fruit is kept previous to storage are, in many cases, distinctly unsuitable. The quality of fruit for cold storage is very important, in that only sound fruit should be stored. Stalkless or insect bitten Apples shonld not be stored; this applies particularly to the softer varieties. Although there has never been experimental evidence to support the view, it has frequently been asserted that flesh collapse is largely due to the high concentration of the carbon-dioxide emanating from the fruit in the atmosphere of the cool chambers. Determinations carried out throughout the season gave only 1·5% as the highest quantity of carbon-di-oxide in any part of any one of the stores. Workers in this country have expressed the view that small quantities of carbon-dioxide act as a preservative and it would appear that the presence of this gas is a negligible factor in the three stores in which the experiments were carried out.

Deterioration of Calcium Caseinate.—It has been found that samples of calcium caseinate kept at the Horticultural Research Station, Long Ashton, Bristol, have, when exposed to laboratory air, suffered considerable deterioration. This effect is due to the action of carbon-dioxide acting on the essential body, and the result is a loss of the property for which the substance is used, namely, increased wetting power. A similar though less deterioration was found in samples kept dry but exposed to the outside air. Users of this substance are therefore warned that they should make every effort to preserve it in an air-tight container such as a tin with a close fitting lid.

Cladrastis tinctoria.—This interesting tree which was figured in *Gard. Chron.*, August 4, 1923, Fig. 27, flowered at Kew in July last for the first time, it is believed, under cultivation. The inflorescence forms a terminal panicle of numerous white, fragrant flowers. The species was originally discovered in Szechuan in 1890 by Mr. E. A. Bratt, but it was not introduced until Mr. E. H. Wilson sent seeds from Hupeh to Messrs. James Veitch and Sons' Coombe Wood Nursery. Its season of flowering is late July, and because of its late blossoming this Cladrastis promises to become a valuable addition to flowering trees in gardens.

Permanent Allotments.—A deputation from the National Union of Allotment Holders waited on Mr. W. R. Smith, Parliamentary Secretary of the Ministry of Agriculture, on the 4th inst., to discuss the question of improved legislation in respect to allotments. The purport of the visit was to place before the

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* *The Annals of Applied Biology*, X., 3 and 4. December, 1923

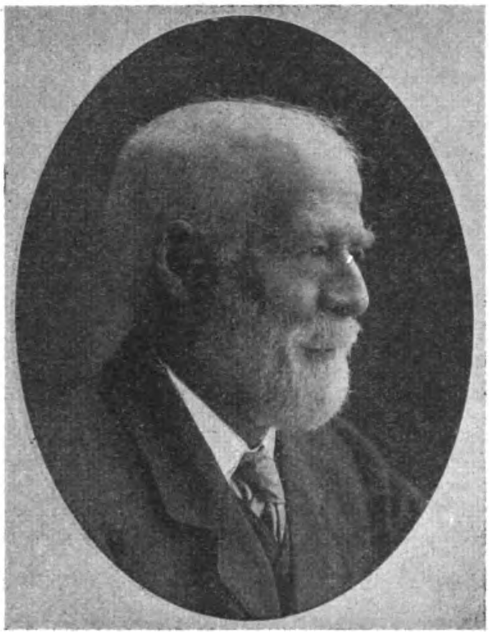
Minister a Bill prepared by the Union for the amendment of allotment statutes with a request that it should be taken up as a Government measure. The main object of the Bill is to make adequate provision for permanent allotments. The deputation also requested that the facilities contained in the Agricultural Credits Act, 1923, should be extended to allotments and that it should be made mandatory upon local authorities to provide allotments in town planning schemes. In view of the threatened eviction of allotment holders at Leeds, the deputation asked the Government to make it impossible for local authorities to divert to other purposes land purchased for allotments without first obtaining the consent of the Ministry of Agriculture and the Ministry of Health. Mr. Smith, while expressing his warm sympathy with the allotment movement, stated that he did not think, owing to the condition of Parliamentary business, there was any likelihood of the Bill being taken up this session.

A Rhubarb Competition.—The Leeds and District Market Gardeners' Association held its eleventh Rhubarb Show on Saturday, the 23rd ult., in the Griffin Hotel, Leeds. The show was also the occasion of a musical entertainment and smoking concert. There were seven classes and in certain of them Gold Medals and Challenge Cups were given by salesmen in various markets. Mr. T. H. Popplewell, Farsley, won the largest number of first prizes, viz., those for six sticks of Victoria Rhubarb or any other variety under five pounds in weight, for which the first prize was a Gold Medal given by Mr. A. Shread, Borough Market, London; the best three marketable bunches of Victoria Rhubarb, not to exceed three-quarters of a pound each, for which the first prize, including a Silver Cup valued at fifteen guineas, was given by Messrs. T. J. Poupart, Ltd., Covent Garden, London; and for the best three marketable bunches of Dawe's Champion Rhubarb, not to exceed three-quarters of a pound each, for which the first prize was a Silver Cup valued at twenty guineas, given by Messrs. Pask, Cornish, and Smart, Covent Garden, London. The best six sticks of Prince Albert or Linnaeus Rhubarb were shown by Messrs. Whitwell and Briggs, Bramley, and the best six sticks of Victoria or any other variety of Rhubarb by Messrs. J. Towle, Beeston, whilst Mr. T. D. Watson, Morley, won the Gold Medal offered by Mr. Smart, Covent Garden Market, for the best six sticks of Dawe's Champion variety. Mr. A. Cowling, Tingley, had the best three marketable bunches of Prince Albert and won the Silver Cup, to be held for one year only, offered by Mr. T. D. Watson.

Netherlands Chrysanthemum Club.—We understand this Club will hold a Chrysanthemum Show in Amsterdam on the 31st October to the 9th November next. Schedules and all particulars may be had of the Secretary, Mr. de Roos, 72, Willemsparkweg, Amsterdam.

Alterations in the Round Tower Moat at Windsor Castle.—In order to restore the Round Tower mound and moat at Windsor Castle to their original character, the overgrown shrubbery on the mound has been uprooted and cleared away, inequalities of the surface smoothed and the whole of the lower slope turfed. The Rose borders and flower beds in the moat itself have also been cleared away and the surface prepared for grass. For many generations the moat has been a delightful old-world garden and in recent years Sir Dighton Probyn made considerable alterations from the gardening point of view. It is stated that the moat has probably been a garden since the fifteenth century, and although the alterations will probably lend a dignified appearance to the Round Tower fortress and be more in keeping with the mediaeval character of the castle, the thousands of visitors to Windsor Castle will miss the gardening features which have existed for so many centuries.

Mr. W. E. Wallace.—The history of Mr. W. E. Wallace of Eaton Bray, Dunstable, is one of the romances of the horticultural world. Born in 1851, at Inkberrow, Worcestershire, he had very little educational advantages and left the village school when he was ten years of age to begin work on a farm at a wage of 1s. 6d. per week. As his father died when he was seven years of age, it was necessary for him to make a contribution to the finances of the home however small, consequently he continued farm work until he was eighteen years of age, when he became a groom, but had to assist the gardener in his spare time. It was by this means he obtained his first knowledge and love for gardening. In this employment he continued until 1872, when his employer died. He occupied a somewhat similar position at Alcester for a further two years, and then obtained a post as gardener to the late Mr. Richard Jesson, of Walsall. Mr. Jesson had a small garden and two greenhouses, and his wife, who was an enthusiastic gardener, helped in the garden and encouraged Mr. Wallace in every possible way. His next position was that of single-handed gardener to Mr. Maurice Pollark of Yardley, near Birmingham, in 1879. In this year he married and made the acquaintance of Mr. Thomas Duck, at that time gardener to the late Sir Richard Tangye, of Gilbertstone, Yardley. In 1886, Mr. Duck and Mr. Wallace took over the premises at Eaton Bray, where he now lives and where a business had been started by the then vicar of the Parish, which had ended in his bankruptcy and the sequestration of the living for the benefit of his creditors. For eight years Mr. Duck and Mr. Wallace worked together, and then by mutual agreement they dissolved partnership, and on January 1, 1894, Mr. Wallace took over the business on his own responsibility and developed it with the aid of his son until it has now reached immense proportions. Although Mr. Wallace had no nursery experience or horticultural training in the ordinary sense, he has made good as a horticulturist, and is now not only a large farmer and one of the most successful cultivators of Carnations for Covent Garden Market, but also an extensive cultivator of fruits. As he puts it: when he commenced commercial horticulture he had nothing to unlearn. His wonderful success has been won by patient industry, a great love for his work, keen powers of observation, adaptability, and honesty of purpose. In the earlier years of his commercial career he found an admirable help-mate in his wife, and in later years his son has taken over a very large share of the management of the business at Eaton Bray. It was about twenty years ago when Mr. Wallace commenced the cultivation of Carnations on the suggestion of the late Mr. Leopold de Rothschild, who gave him the first Carnation plant he ever grew, and he used frequently to visit him and congratulate him on proving such an apt pupil. Although a busy man with extensive business interests Mr. Wallace takes a keen interest in local and general affairs. For about nine years he has represented his district on the Bedfordshire County Council, and he is a member of the County's Education Committee, a governor of the Ashton Grammar School, of the Cedars Secondary School of Leighton Buzzard, and a vice-chairman of the Local Group of Council Schools. He is a Justice of Peace of the County of Bedford, and a member of the Licensing Bench for that County. For over thirty years he has been Secretary of the Eaton Bray Reading and Recreation Room, which is a very flourishing institution. He was one of the founders of the Chamber of Horticulture and has been on its Council since its inception. He was also one of the founders of the British Florists' Federation, of which he is now the President. Mr. Wallace also takes an interest in the Church work of his parish and has been Vicar's Churchwarden for the past thirty-six years. Mr. Wallace possesses a charming personality, is held in the highest esteem by all the business men with whom he comes into contact and greatly loved by all his personal friends.



MR. W. E. WALLACE.

Honour for M. Philippe Rivoire.—This gentleman, a member of the well-known Lyons firm of seedsmen and nurserymen, the Secretary of the French Chrysanthemum Society and an active personality in French horticulture, has just been appointed by the King of the Belgians a Chevalier of the Order of Leopold. It is not so long ago that we had the pleasure of congratulating M. Rivoire on his appointment as Chevalier of the Legion of Honour, and have now to congratulate him on his more recent distinction.

Araucaria Bidwillii.—The Araucarias comprise a group of very ornamental evergreen trees, and the two Australian species, A. Cunninghamii and A. Bidwillii are amongst the largest members of the genus. A fine specimen of the former, growing in the Adelaide Botanic Gardens, was illustrated in *Gard. Chron.*, February 10, Fig. 39, and we now on page 149 reproduce a photograph of the companion species A. Bidwillii growing in the same gardens. We are indebted to Mr. J. F. Bailey, Director of the Adelaide Botanic Garden for both photographs of these interesting Australian Conifers. Araucaria Bidwillii attains, in its native habitat—the coastal region of Queensland—a height of over 150 feet, and a well-grown specimen is a beautiful feature of the landscape owing to its imposing size and symmetrical shape. It was called by the natives "Bon-yi," which has been corrupted into "Bunya," and the tree is now commonly known in Australia as "Bunya Bunya." The timber is pale-coloured and put to similar uses as that of A. Cunninghamii. In some parts of Queensland there are large forests of this fine tree.

Tunisian Chrysanthemum Society.—A short time ago a branch of the French Chrysanthemum Society was established with considerable success at Tunis. A show was held last season and appears to have been well patronised, and as a result there has been an important addition to the list of members. Visits are made to gardens in the district where Chrysanthemums are grown and a promenade-lecture is one of the features of the Committee's work. To assist in the popularisation of the flower it has been decided to publish a pamphlet on the cultivation of the Chrysanthemum in the North of Africa. The work will be illustrated and will consist of about 100 pages of text.

British Mycological Society.—The next meeting of the British Mycological Society will be held in the Botany Lecture Theatre, University College, Gower Street, W.C., on Saturday, March 15, at 11 a.m. The following interesting papers will be read.—"Conditions of sclerotia formation in a species of Aspergillus," by Miss M. Brett, M.Sc.; "Some results of the Ministry of Agriculture's Plant Disease Survey" by Mr. A. D. Cotton, F.L.S.: "The work of Kruis and Satava on normal and reduced forms of yeast and alternation of generations," by Dr. J. Peklo, and "Diseases of Clove," by Miss E. J. Welsford, F.L.S.

Appointments for the Ensuing Week.—Tuesday, March 18. Croydon and District Horticultural Society's meeting; Winchester Horticultural Society's lecture. Wednesday, March 19: Morley and District Paxton Society's meeting; Glasgow and West of Scotland Horticultural Society's meeting. Friday, March 21: Eastbourne Horticultural Society's meeting. Saturday, March 22: Falkirk Horticultural Society's show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Vines and Carrion.*—Your Calendar writer says, "Put no vile carrion in a Vine border." I entered my situation in the end of last summer, in time to take a most excellent crop of Grapes from a Vine which is at the back of a stable, in a south-east aspect. They were nearly ripe, and considering the cloudy and wet season we had, were extraordinarily fine for outdoor Grapes. About a month since, I directed the men to turn the ground up constituting the border for the said Vine. Upon inquiry I found that there had been a favourite horse buried there two years ago; he had been quartered and put to this Vine, an application which has answered very well, for I never saw such a mass of roots as were running hither and thither through the bones, for the flesh was nearly consumed. Some of the roots were as thick as the thumb. Now, I imagine that you will think with me that they must have entered the raw flesh. *Edward, Cheltenham.* [Indeed, we think no such thing.] *Gard. Chron., March* 17, 1849.

Publication Received.—*The Physiology of Photosynthesis.* By Sir Jagadis Chunder Bose. Longmans, Green and Co., 39, Paternoster Row, E.C.4. Price 16s. net.

PUBLIC PARKS AND GARBENS.

CANNON HILL PARK, BIRMINGHAM.

THE illustration (Fig. 58) represents a fine specimen of an old favourite Orchid, viz., Coelogyne cristata, flowering in the warm conservatory at Cannon Hill Park. This specimen, measuring over four feet across and carrying 140 spikes of flowers, is growing in a pan with a diameter of ten inches.

Other Orchids in flower in this public park include Cymbidiums in variety, and a good collection of Cypripediums of which the following are noteworthy: C. Dreadnought, C. Conference, C. Memoria F. M. Ogilvie, C. Britannia, C. Hera-manni, C. Goliath, C. Mme. Albert Fevrier, C. chrysotens, C. chrysotoxum var. Victory, C. Cupid, C. Scipio, C. Queen of the Belgians, C. Memoria Mostyn var. superba, and two seedlings of great promise, viz., C. Mrs. F. Godman × C. Jupiter Marie and C. Actaeus superbum × C. aureum sulphureum. The flowers are of large size, good form, and fine colour.

In addition to the Orchids the following plants in flower combine to make an attractive display, which is much appreciated by the public in these dull days:—Cinerarias, Primulas, Azaleas, Euphorbia jaquiniaeflora, Spiraeas, Cyclamens, Begonia manicata, Thyrsacanthus rutilans, Eranthemum pulchellum, and the usual spring-flowering bulbs

Basket plants in flower include the lovely Columnea gloriosa and C. hirta. *J. G. Besant.*

ALPINE GARDEN.

GAULTHERIA PROCUMBENS.

THIS is a neat growing, North American evergreen perennial, suitable for growing in partial shade and damp spots in a sandy, peaty soil. It is one of the few plants that thrives beneath Yews and Firs. The bright green leaves and pendulous clusters of axillary, snow-white flowers which appear from June to August are succeeded by a profusion of bright red berries, which are most attractive in winter. *W. L.*

TROLLIUS PUMILUS.

TROLLIUS pumilus grows only about six inches high and has small leaves, proportionate to its stature, and not globular but flat flowers of a bright yellow colour. It is an easy plant to cultivate in a border, although it has a natural preference for a moist place, and it is a suitable subject for the lower parts of the rock garden. It presents no difficulty in its cultivation and is increased by division after it flowers in summer. It may also be raised from seeds, but this is rather a slow process, the seeds being sometimes long in germinating. The Trollius often offered as P. yunnanensis is understood to be merely a variety of T. pumilus. *S. Arnott.*

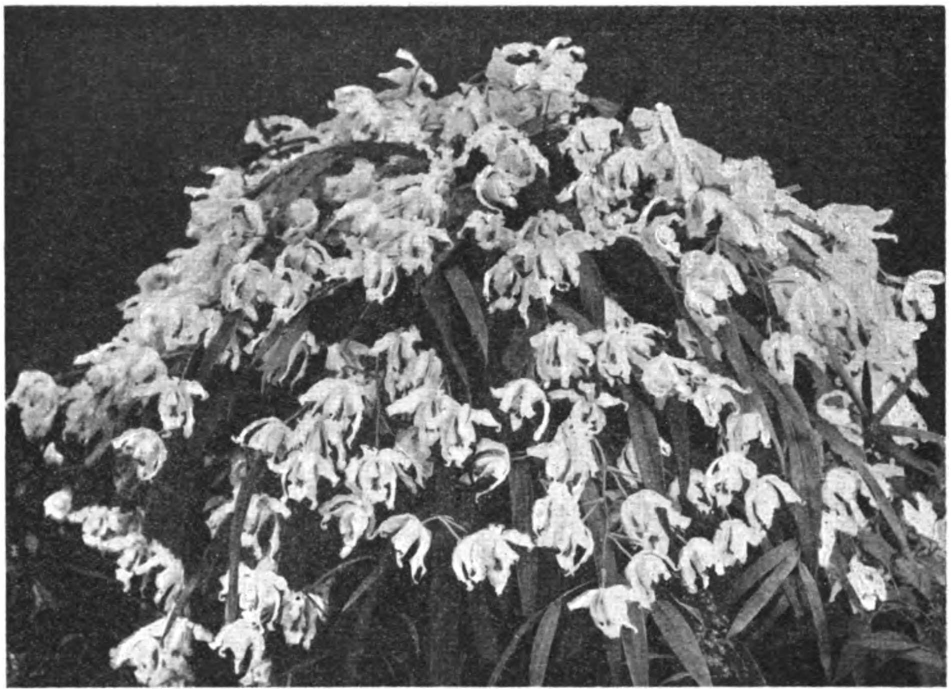


FIG. 58.—SPECIMEN OF COELOGYNE CRISTATA FLOWERING AT CANNON HILL PARK, BIRMINGHAM.

MUEHLENBECKIA COMPLEXA.

THIS graceful, scrambling, evergreen shrub is a suitable subject for a sunny position in the rock garden, where it is not likely to smother its less robust-growing neighbours. It is of rapid growth and quickly forms a tangle of wiry stems, which are furnished with glabrous, Maidenhair-like foliage of a warm bronze tint. The long, arching sprays rising from the dense prostrate bush, bear in autumn, when mature, small clusters of glistening, translucent fruits. *Fred. W. Jeffery.*

HELIANTHEMUM LUNULATUM.

THIS delightful Sun Rose, which is a native of the Mediterranean coast, is one of the most distinct and beautiful of the more dwarf species. It makes a neat, semi-prostrate bush about eight inches tall and rather more in width. The many slender branches are well furnished with small, oval-pointed leaves which are very silvery, and almost continuously from spring to autumn appears a succession of bright yellow flowers about ½-inch in diameter. These are distinguished from others of the race by the crescent-shaped blotch of orange at the base of each petal.

H. lunulatum is reasonably hardy in any light, gritty soil. It delights in full sun and likes to get its roots beneath a stone. Doubtless it would appreciate lime but this is not essential. It is a long-lived shrub and even though it may suffer in winter to the extent of losing most of its leaves it makes wonderfully rapid progress in early spring. *J.*

BULB GARDEN.

BULBOCODIUM VERNUM.

THIS plant is allied to the autumn Crocus and has a strong resemblance to the Colchicum. It is a dwarf Liliaceous plant of the simplest culture in any free, warm soil. It usually appears with the Snowdrops, Snowflakes, Wood Anemones and other early flowers. The bright rose purple flowers are about four inches in height and make a pleasant contrast among the prevailing white and blue flowers of the early year. The plant is best grown in association with some low carpeting plant that will give the flowers support and prevent soil-splash, but it will also thrive under such conditions as suit the Colchicums. As with the latter, the leaves follow the flowers and division of the bulbs may take place when the foliage has died down soon after midsummer. This Bulbocodium is a native of the European Alps and quite hardy. *A. T. J.*

HYACINTHUS ORIENTALIS.

AMONG a lot of bulbs sent here from Asia Minor last autumn by a kind donor, there is now in flower Hyacinthus orientalis, the modest progenitor of the many-coloured varieties which we owe to the industry of Dutch florists. Delicately tinted with pale blue merging into emerald at the outside of the throat, this Hyacinth is not nearly so showy as our native wild Hyacinth—Scilla festalis—for which, as a Scotsman, I cannot adopt your English name of Blue-bell. Whereas the said Scilla sports into pink and white varieties, it is possible that some day enterprising florists may play pranks with it similar to those which have resulted in the transformation of the oriental Hyacinth. *Herbert Maxwell, Monreith.*

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

Vanda, Aerides, Saccolabium and Angraecum.—These Orchids should be examined and the old Sphagnum moss removed and fresh moss substituted. Plants that have lost many of their bottom leaves and are sending out new roots from the stems should be re-potted, Cut them back at the base to within a few inches of the living roots, and place them in receptacles with the foliage near to the soil. Vandas and Aërides are best grown in pots or rather deep pans, whilst Saccolabiums give the best results when planted in teak wood baskets and suspended near the roof glass. A quantity of crocks should be placed in the bottom of the receptacles to provide drainage. Employ clean Sphagnum moss as a rooting medium, with portions of broken pot placed among it to allow water to pass away quickly. Fill the receptacles to their rims and arrange the materials higher in the middle of the pot or basket. Finish with a layer of clean, living Sphagnum moss over the surface. Clean the plants thoroughly from scale insects which infest the stems and axils of the leaves. The strong growing Angraecums are best planted in pots. The dwarf species are usually cultivated in shallow Orchid pans.

Masdevallia.—The present is a suitable time to make a general examination of Masdevallias. Some of the plants will need top-dressing only, while others will require repotting. Any specimens that have become root-bound may be shifted into larger receptacles, and in doing this disturb the roots as little as possible. Others that have become bare in their centres may be broken up, and, after cutting away all decayed parts, be potted up afresh in smaller pots, or several may be placed together to form larger specimens. The strong-growing species, such as M. Harryana, M. Veitchii, M. ignea, and others of this type are best grown in ordinary flower pots, but the smaller Masdevallias, such as the white M. tovarensis, are best cultivated in pans. M. Chimaera, M. Wallisii, M. Backhousiana, and M. Houtteana should all be grown in teakwood baskets, and, as the flowers are produced in a downward direction, ofttimes through the bottom of the receptacle, no crocks should be used for drainage. The plants are best suspended from the roof-rafters in the warmest and most shaded position in the Odontoglossum house. Good fibrous peat or Osmunda-fibre, and Sphagnum moss in equal proportions cut into rather short portions and mixed well together form the best rooting medium. Apply water carefully until the young leaves are well advanced, but at no time should the plants be allowed to suffer from drought.

THE FLOWER GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Kniphofias.—These stately plants frequently remain in flower until nearly mid-winter, so that it is not wise to remove them immediately after flowering. The present is a suitable time for lifting, dividing and replanting when this it necessary. Care should be exercised in the operation, as the large, fleshy roots are easily injured.

Roses.—The pruning of Roses is a matter of absorbing interest at this season. Like many other gardening operations it is a simple one when principles are grasped. It is impossible to give actual dates for the operation, or to state definitely the degree of pruning which should be practised, as positions, localities and other conditions vary greatly, and the operator must decide these matters on the spot. Broadly speaking, all Roses planted during the current season should be cut hard back, for the rest, knowledge of the plant and all other conditions enable the pruner to determine when and where to cut. Very strong growing varieties may be pegged down to the ground, leaving the shoots to nearly their full length. The weaker growing varieties may be pruned back to two or three buds, and standards generally may also be pruned hard. Hybrid Perpetuals and Hybrid Teas may be pruned from the middle to the end of March, deferring the pruning of Teas and Noisettes until the first half of April.

Shrubs.—Early-flowering shrubs such as Chimonanthus fragrans, Jasminum nudiflorum, Forsythias and Hamamelis, should be pruned as they pass out of flower. The amount of pruning necessary depends somewhat on the position and vigour of the plant, but, generally after conserving well-placed shoots for the extension of the tree, hard pruning should be practised to induce strong growths to develop from basal buds for next year's flowering.

Cannas.—The Canna occupies a high position amongst summer bedding plants, for it offers an infinite variety of characters, combining magnificent foliage with brilliant flowers. Roots stood under the stage of a cool house during the winter should now be overhauled, potted into the smallest pots that will accommodate them, and grown on in an intermediate house, shifting them later into larger pots as required.

PLANTS UNDER GLASS.

By F. J. CLARK, Gardener to Lt.-Col. SIR GEORGE HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Torenia Fournieri.—This is a free-flowering stove annual bearing blue and mauve flowers, and one which is well worth growing for associating with Gloxinias. The seed may be sown thinly in pans now. The seedlings should be pricked off into other pans and finally potted either singly in five-inch pots or three plants may be placed in a six-inch pot. The points of the young growths should be pinched several times to promote a bushy habit. When in flower the plants should be fed liberally, and if the spent flowers are regularly removed the plants will bloom profusely for several months.

The Stove.—A thorough overhauling of the plants in the stove house should now be made. The cleansing of the plants and the eradication of pests should be taken in hand preparatory to potting operations. Climbing plants trained on the roof or on trellises, if not already done, should be taken down and pruned. Allamandas, Dipladenias, and the climbing forms of Clerodendron should have the growth of the past season cut back to within one or two joints of the old wood, whilst that of Stephanotis floribunda should be well-thinned. The plants should then be dipped in a reliable plant wash, or syringed with the same material and afterwards sponged. The wire and ironwork of the supports, also crevises in the walls and woodwork should be treated with paraffin emulsion as a precaution against mealy-bug, before replacing the climbers in their former positions. Where the plants are growing in beds, as much of the old soil as can be safely removed without causing injury to the roots should be taken away and fresh soil substituted. The compost for Allamandas and Stephanotis should consist of two-thirds fibrous loam, used in a lumpy state, and one-third peat or good leaf-mould, with a free addition of broken charcoal and sharp sand. Dipladenias prefer a compost in which peat predominates. The handsome Codiaeums (Crotons) and Dracaenas, being susceptible to the attacks of thrips and red spider, which invariably effect a lodgment during the winter owing to the necessity for increased fire heat to maintain suitable temperatures, should receive special care at this season in the matter of cleansing.

Temperature of the Stove.—A night temperature of 65° will be sufficient at this time of year. Guard against the water pipes becoming over-heated, and maintain a moist atmosphere by syringing the walls, paths, and between the plants on frequent occasions.

HARDY FRUIT GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Grafting.—Trees that are to be grafted this spring should have been headed back by now, leaving the branches, in the case of dwarfs, from six to nine inches, and half-standards and standards considerably longer, but there is nothing to be gained by leaving any stock too long. The scions should be from nine inches to a foot long after the base and tip has been cut off. The internodes of certain varieties of Apples and Pears are longer than others, which the operator should allow for. Four or five scions may be inserted on each stem on old trees, but if young trees are being grafted then only one scion to each shoot will be necessary, and the scion and stock should equal each other in size so far as is possible. Tie each graft in position tightly with broad raffia. Material, such as clay or wax, is suitable for covering the place of union to exclude rain and prevent drying winds and strong sunshine drying up the sap. Certain varieties will take longer than others to unite, therefore a close watch should be kept to prevent the binding material becoming too tight. Young trees require somewhat different treatment. A sloping cut should be made on both stock and scion, leaving the two ends pointed. Place them together so that both cut surfaces fit exactly evenly at the bark, for the closer they adhere the quicker will be the union.

Autumn-fruiting Raspberries.—The canes should be cut down close to the ground as fruit is produced on the current season's growths, which should be thinned in due course. Cut out all weak growths and tie the strong canes in position with soft string. Give the plantation a liberal mulch of well decayed manure as soon as the growths are advanced; there will then be no danger of breaking the young shoots, which grow fast and are very brittle.

Alpine Strawberries.—Seed of Alpine Strawberries may be sown in pans filled with light, friable soil. When large enough prick out the seedlings in boxes to be subsequently transferred to the open garden when large enough, at a distance of eighteen inches apart each way. These Strawberries develop a large number of runners, which are of no use, therefore they should be kept picked off. The fruits are small but of excellent flavour, and are available at a time when other Strawberries are over.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Pot Vines.—One-year-old pot vines that have been previously cut back to two eyes should be potted if this has not already been done. The roots should be shaken free of the old soil, and placed in receptacles in which they are intended to fruit next year. The potting compost should consist of good fibrous loam mixed with lime rubble, charcoal, and fine bone-meal. After potting the vines place them in gentle warmth and, as soon as they have commenced to grow freely, disbud the shoots to one growth after making the shoot that is to be retained secure to a neat stake.

Peach Trees in Pots.—The fruits of Peach trees in pots are swelling freely and from now onward care should be taken to prevent the roots from becoming dry, for if they are allowed to suffer from lack of moisture the crop will undoubtedly be a poor one. Where the fruits are numerous they should be thinned carefully, removing those that are badly placed and deformed. The disbudding of the shoots should now be completed, leaving two well-placed shoots on each branch.

Early Peaches.—These trees are growing freely, and attention should be given to disbudding the shoots. This work entails a little patience, and it should not be done in a drastic manner but at intervals, allowing several days to elapse between each operation, until the work is finally completed.

Early Permanent Vines.—The shoots of early Vines should be kept clear from the roof glass, etc., especially at this season of the year, when cold nights may be expected. Although it is not advisable to tie the laterals in position at one operation, they may be kept from the glass by gradually bringing them to the wires with the aid of a loose tie. After the shoots have been stopped and the vines are nearing their flowering stage they may be tied in position without much fear of injury. Take advantage of bright days to forward the crop by closing the house early. If, however, the nights are cold it is not advisable to maintain a higher temperature than 60° to 62°, but on mild nights the temperature may rise several degrees with beneficial effect.

THE KITCHEN GARDEN.

By Walter Y. Staward, Gardener to Mrs. John Feeney, The Moat, Berkswell, Warwickshire.

Beetroot.—A sowing of Egyptian Turnip-rooted Beet should be made on a south border in ground that has been worked to a fine tilth. The seed may be sown thinly and when the seedlings are large enough for use the largest roots may be pulled to allow more room for the smaller ones to develop.

Spinach.—A fair-sized sowing of Spinach may be made on a south border to ensure a plentiful supply of the leaves for use. Other sowings may be made at intervals of two weeks for successional cropping.

Parsley.—Sowings of Parsley may be made now. This herb may be grown as an edging to paths in the kitchen garden or similar places where it will receive plenty of light and air. Parsley sown at this time will give a good crop of leaves in the summer.

Potatos.—Early Potatos may now be planted in the open. A small border under a south wall is a suitable place for growing this crop, which will need protection from frost.

Carrots.—Sowings of Early Short Horn Carrots may be made on a warm border facing south. Early Carrots are very subject to attacks by the Carrot Fly, and a remedy I have used is to spray the ground before it has been forked with sheep dip, afterwards making the surface of the soil fine. When this has been done and the ground levelled the seed may be sown. A further spraying may be made over the place where the Carrots are sown. Sheep dip may also be used on the Onion bed to combat the Onion fly.

Lettuce.—Lettuces raised from seed sown in pots some time since are ready for pricking out into frames or boxes filled with light soil. If the plants are grown in frames shade them from strong sun for a day or two after transplanting them, and keep the frames closed for a time. When the plants are established in the soil admit air to the frame.

Wintered Crops.—Work the hoe between the rows of Spinach, Lettuce, and Early Cabbage to open up the surface and admit air to dry and warm the ground.

INDOOR PLANTS.

PREPARED HYACINTHS.

Practical experience and catalogue prices alike tell the sad tale that all cannot be well with those useful old favourites—Roman Hyacinths. A few weeks back I had a letter from a well known gardener who stated he had given up Roman Hyacinths because they were unsatisfactory and dear, and had for the last two years tried Cynthella Hyacinths in their place, but his gardener had not been able to get them into flower for Christmas as he wanted. The accompanying illustration (Fig. 59) shows the display a certain Dutch firm had in its warehouse last Christmas. Such a display was obtained by using what is known as "prepared" Hyacinths. Both first-sized and small-sized bulbs have been found by practical experience to be amenable to this treatment.

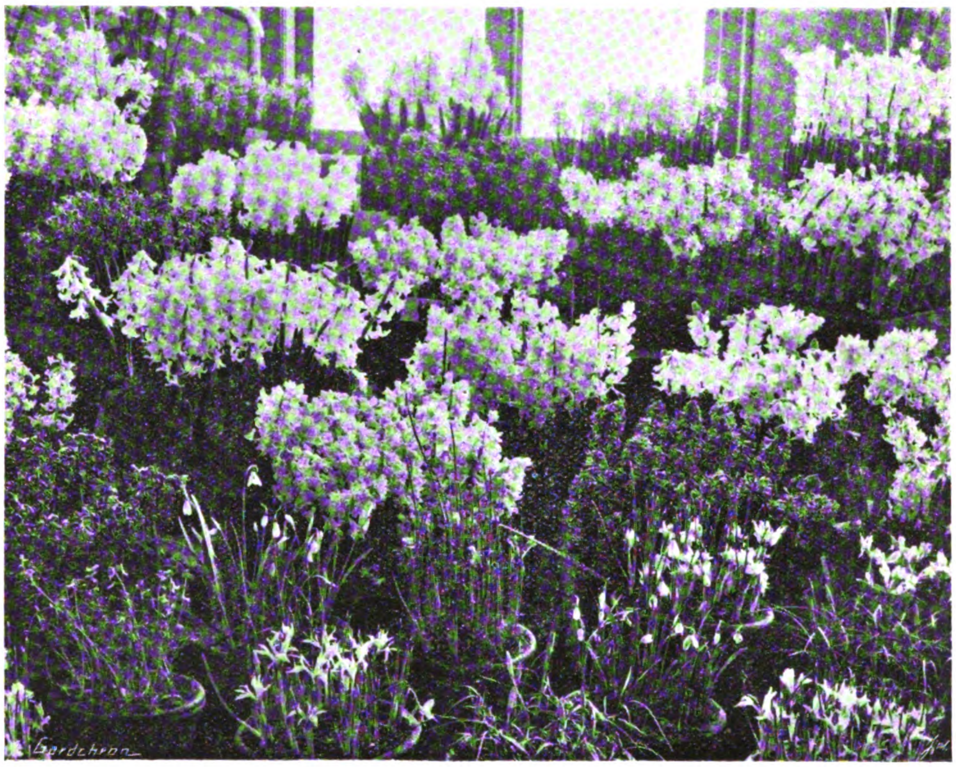


FIG. 59.—GROUP OF PREPARED HYACINTHS IN FLOWER ON DECEMBER 22, 1923.

The reply I sent to my gardener-friend was that Cynthella Hyacinths were one thing, but that "prepared" Cynthella Hyacinths were another matter altogether, and that if he wanted a really good show at Christmas time he must get prepared bulbs. I have looked over some of the 1923 English bulb lists and I must say that some are by no means so clear as they might be in pointing out that to have Dutch Hyacinths in bloom at Christmas it is necessary to use prepared bulbs. My correspondent's letter shows how necessary it is. It was not a man-in-the-street who sought advice, but a good capable gardener. One of the daily prayers of every good gardener should be "May I always keep my eyes open." Someone in Holland observing how Hyacinths growing in dry soil in a hot corner of a Hyacinth nursery always died down earlier than the others, and that in the following spring these bulbs were invariably the earliest to come into flower, hit upon the happy idea of trying to reproduce the same thing, as it were, artificially, by digging up the bulbs a few weeks before they had naturally died down and then keeping them for a few weeks in a hot, dry temperature. This is the outline of the process by which Hyacinth bulbs are "prepared." Certain varieties respond better than others to this treatment, and some preparers are greater adepts at the business than others, but as practice makes perfect, every succeeding season enables the Dutch growers to offer better and better bulbs. No one need be afraid to take the risk of purchasing prepared bulbs for blooming at Christmas. No one need fail if they treat them right.

The bulbs illustrated were planted in the second or third week in August and were kept outside under sand or ashes until the end of November, when they were brought into a forcing house having a temperature of 70° to 75°, with the result that there was a grand display two days before Christmas. Early potting is always essential, but this high temperature is not. My houses are seldom over 55°, and I have found that by bringing the bulbs under glass at the end of October and thus giving them a longer period of growth they can equally easily be had in flower on or about the 25th of December. A little experience will soon familiarise anyone with the details of the treatment best for his special case. I am convinced that there is a great future in store for these prepared bulbs. Even if they are potted at the same time as ordinary Hyacinths, say in September or October, and then grown on side by side with them they will come into flower about ten days earlier. Thus they are useful under ordinary conditions of treatment for a succession. An order might be given for a dozen prepared L'Innocence, let us say, and a dozen ordinary L'Innocence, instead of two dozen L'Innocence as it would have been in the old days before "preparing."

I have not been in Holland since 1914, and I have not seen what is being done there, but I do hope some people are selecting and sowing seed with the vision before them of a small and graceful race of white and coloured varieties which will have all the charm of the old Roman variety and the once much despised Oranje Boven. One knows from the old flower books like the *Hortus Floridus* of Vande Pas and

Vallet's *Le Jardin du Roy tres christien Henri IV* the material on which the men of Holland had to work, and one can see in the great modern varieties like Jacques, Perle Brillante, Corregio and City of Haarlem what they have made out of it. It is hard, I feel, to be asked to put the hands of the clock back, but a more refined taste demands it. In "prepared" Cynthellas above all. *Joseph Jacob.*

POINSETTIAS.

Poinsettia (Euphorbia) pulcherrima, introduced from Mexico in 1834 stands unrivalled for the radiant colour of its scarlet bracts, and has few equals as a winter-flowering plant for conservatory or room decoration. Well-grown plants remain in beauty for a long time, and by careful management it is possible to maintain a brilliant display from November to February, thus covering the dullest period of the year. When the plants have passed out of flower they should be kept quite dry and rested in a cool house for two or three months. In May they may be introduced to a house having a temperature of about 60°, when they will soon develop growths suitable for use as cuttings.

The cuttings should be taken off with a heel when they are about three or four inches long, inserted in thumb pots in sandy soil and placed in a propagating case, the whole operation being deftly carried out to prevent flagging of the cuttings. Roots will form in from fifteen to twenty days, when the cuttings should be removed from the case. As soon as they have become accustomed to the atmosphere of the house they should be placed in 3½-inch pots and grown on in an intermediate temperature, gradually inuring them to cooler and more buoyant atmospheric conditions until they will succeed in an unheated house.

For the final potting 6-inch pots will be necessary, and a compost consisting of three parts good fibrous loam, one part flaky Oak-leaf mould, with a little sand and a sprinkling of bonemeal. When established in these pots some growers, in favoured localities in the south, stand the plants out of doors until September, but the success of this practice depends largely on the nature of the season, and it is seldom worth risking. A better plan is to plunge them on a nearly spent hot-bed where the frames may be raised gradually as the plants grow, thus keeping them constantly near the glass. They may be syringed freely in the afternoons, and the lights may be removed entirely during periods of suitable weather.

The plant has a decided habit of running up with a single stem, but occasionally two or even three leads are formed from a natural break. Early plants that show a disposition to become too tall and have lost their leaves at the base may be topped as follows. In late August cut the shoots halfway through about eight inches or ten inches below the tops and leave them in this state on the plant for a week or ten days until the cut portion has become callused, then completely sever them, insert the severed portions in 3-inch pots and place them in a propagating case. When rooted transfer the plants to 5-inch or 6-inch pots, gradually accustom them to air and ultimately to full exposure. Careful watering during the whole period of growth is the keynote of success, and the conservation of the leaves is an index of good cultivation and essential for the production of large and well-formed bracts.

As soon as the nights become cool the plants should be removed to a well ventilated house. In October they may be introduced in batches to a house of intermediate temperature as demands make necessary. The bracts last much longer in a temperature of 55° than in a warmer house, and when cutting the inflorescences for room decoration the ends of the stems should be inserted in boiling water for a few minutes to destroy the tissue and thus prevent loss of sap. *W. Auton.*

ANNUALS FOR GREENHOUSE AND CONSERVATORY DECORATION.

AMARANTHUS.

This genus includes several species that are very useful for pot culture. They are usually grown for their beautiful coloured foliage, and although frequently used in the south of England for summer bedding they may be regared as greenhouse annuals. For this purpose seeds should be sown in a warm house during April and May. In their younger stages the seedlings should be encouraged to make rapid growth, in a temperature of 55° to 60°. As the plants increase in size they should be accustomed to cooler and more airy conditions, exposing them to all the light available, as this is necessary to bring out the brilliant colours of the leaves.

The smaller growing species and varieties may be grown in 48-sized pots; they include A. bicolor, A. melancholicus ruber, and A. tricolor and its varieties. The taller growing species and their varieties, such as A. salicifolius, A. sanguineus, and A. speciosus, will require pots at least six inches in diameter to do them justice.

BROWALLIA.

The Browallias include several very useful and pretty, blue-flowered species. B. elata, and its white-flowered variety, is very useful when three or four plants are grown together in a 48-sized pot; it is an upright growing plant, attaining a height of eighteen inches, as also does B. grandiflora. This latter species is of a more bushy habit, and should be grown singly in 48-sized pots.

B. viscosa (syn. B. Czerwiakowski and B. pulchella) is a larger growing plant with a bushy habit and attaining a height of some two feet. The young seedlings should be pinched several times to form a good foundation. Grown on in 6-inch pots, this Browallia makes fine specimens, and if supplied with liquid manure at the roots remains in flower for a long time. By sowing successional batches, flowering plants may be had from April until late autumn. B. speciosa major is a greenhouse annual, with large, blue flowers, and is the best of the annual species; although by no means so easily grown as the others. It is an advantage if seed can be sown during September in a house with a temperature of 50° to 55°, as this gives the plants a good start for the following season, although good examples may be grown from seed sown during January and February. Seedlings should be stopped once or twice in order to obtain a branching habit. B. speciosa major is best grown in a temperature of about 50° until it comes into flower, when it should be removed to a cool greenhouse. Under the cooler conditions water should be carefully afforded at the roots. There is a white-flowered variety which, however, is not so strong growing as the type; both may be propagated by means of cuttings, but seedling plants are always the strongest. *J. C.*

FLORISTS' FLOWERS.

THE FLORISTS' AURICULA.

At one period of its history the show or florists' Auricula made a very wide appeal to the flower-loving public and enjoyed a varied clientèle; especially were these plants extremely popular amongst the industrial classes of the North and Midlands. To-day the more accommodating alpine section has almost ousted the old florists' type from cultivation, and show Auriculas are now seldom met with outside the collections of a few enthusiasts and the one or two trade specialists.

This is a pity, for the self, grey-edged, white-edged and green-edged flowers of the florists' varieties possess much beauty and are, for the most part, easily grown, but unfortunately, are not particularly cheap.

The plants do not require large pots, a "sixty" being sufficiently commodious for the more weakly varieties, and a four-inch pot will easily accommodate the robust kinds.

A rich, mellow loam mixed with dried cow manure and sharp sand will provide a suitable rooting medium, the pots being well drained and the plants made moderately firm. The best time to carry out potting operations is at the end of June or early in July, and any offsets which are then available should be taken from the parent plant and placed separately in very small pots. During the summer months the plants may be stood beneath a north wall with facilities for affording protection from heavy rains.

On the approach of cold nights, the plants should be removed to their winter quarters; a cold frame or brick pit may be used, but a light and well ventilated house is preferable. Excessive heat must be guarded against, only sufficient fire-heat to counteract sharp frost and damp being necessary; careful watering is essential to the well-being of the plants.

A white aphis that attacks the roots of the plant is the Auricula's greatest enemy; when re-potting, the affected parts should be cut away and the wounds dressed with a little powdered charcoal.

It is not possible to grow show Auriculas in the open air, for the farina on the foliage and the "paste" of the flowers soon become injured by rain, but the very beautiful alpine varieties are extremely hardy and easily grown, so that we have a use for each of the two sections of this lovely old-fashioned flower.

Simonite, Lightbody, Henwood, Douglas and other famous names, take our thoughts back into the past, and I do not think there is one of us who would like to see this fine old flower neglected.

A small selection of good varieties would be as follows:—

Selfs.—Buttercup, Favourite, Harrison Weir, Lord of Lorne, Mikado, Mrs. Potts and Ruby.

Green-Edged. — Abbé Liszt, Abraham Barker, Dr. Hardy, Mrs. Henwood, Prince Charming and Shirley Hibberd.

Grey-Edged.—George Lightbody, Lancashire Hero, Olympus, Richard Headley and William Brockbank.

White-Edged.—Acme, Heatherbelle and Vesta. *Ralph E. Arnold.*

HARDY FLOWER BORDER.

PENTSTEMON HETEROPHYLLUS.

This beautiful Pentstemon was introduced from California in 1834, and is a fine subject for the rock garden or for a warm border. It grows to a height of eighteen inches or even two feet under favourable circumstances and flowers with great profusion, the blossoms being remarkably persistent.

The blooms are produced in pairs on somewhat slender, but rigid spikes, each spike carrying from one dozen to two dozen flowers; they open with a suffusion of lilac-pink, but later pass to a most beautiful metallic-blue.

The plant thrives in deep sandy loam, and is quite hardy in a fairly dry and well-drained situation; it is easily propagated by means of cuttings inserted during the summer or early autumn. Some forms of this plant are much superior to others, or perhaps "strains" is the better term to use; the best type has very narrow foliage and the flowers are a fine glistening blue.

A slight shortening of the growths after flowering may be allowed with advantage. *Ralph E. Arnold.*

TREES AND SHRUBS.

RHODODENDRON RHODORA.

MORE commonly known as Rhodora canadensis, this pretty deciduous shrub is one of the most charming of early-flowering Rhododendrons. It is of slender habit, with more or less erect branches some three feet in height. The leaves, which appear after the flowering season, are narrowly oval, about two inches long and slightly hairy.

Often as early as mid-February the buds which terminate the many branches will break into the gay, wide-open flowers of bright rosy lilac, and for several weeks the bush will be one of the brightest objects in the garden.

Though sometimes classed among the Swamp Honeysuckles, R. rhodora will succeed in any cool and retentive border soil and it does not object to partial shade. An occasional mulch of leaf-mould is all that it needs. Being a native of Eastern N. America this shrub is quite hardy in any part of this country.

THE SPRING-FLOWERING HEATHS.

THE most important of the Ericas which comes into bloom when the Tree Heaths are going over and before the first colour appears on E. cinerea is E. mediterranea, the Mediterranean Heath. This is not only a remarkably handsome shrub, and one that may be relied upon to bloom with unfailing regularity every spring, but is sufficiently hardy for almost any locality. Grown in masses it produces a wonderful display of its full-toned, rosy-red coloured flowers, and in warm, sunny weather it gives off a sweet, honey-like fragrance. The normal flowering season extends from early March to the end of May.

E. mediterranea will succeed in a medium to light loam. It is shapely and erect in habit and, under favourable conditions, will attain a stature of over six feet. There are several varieties and of these alba is incomparably the best, indeed, it is one of the finest of all white Heathers. It may not have the feathery elegance of Calluna Serlei and C. Hammondii, and must yield place to these in the matter of foliage, but E. m. alba has pure white flowers, and blooms with the utmost profusion even when the plants are young.

Though very compact in habit this white form does not grow so tall as the type. The variety of E. mediterranea known as E. hibernica (glauca) is interesting on account of the blue-grey bloom which covers the foliage, but it is not such a free bloomer as the typical species. The same is true of the dwarf variety nana, which does not grow more than about one foot tall.

The choicest of the spring-flowering Heaths is undoubtedly E. australis, which is a native of the south-western portion of the Spanish Peninsula. In the size and brightness of its flowers E. australis is easily superior to any other Heath of its season, if not of all seasons. It is, however, said to be rather on the tender side in some districts and is, therefore, not so reliable for general planting as E. mediterranea. E. australis is still uncommon, even in gardens where it would thrive admirably without protection. Here we have found it as hardy as any other Heath; an old specimen in the open has, on several occasions, been subjected to 20° of frost without injury. It is probable that E. australis would be more often seen in gardens were the true species always sent out by nurseryman. A few years ago it seemed difficult to avoid getting some form of E. mediterranea delivered as E. australis, but matters in this respect are improving, and there really need be no confusion between the two species for they are quite distinct. The most notable point of difference is in the blossoms, for whilst those of E. mediterranea are much smaller, produced in crowded racemes, and of a paler colour those of E. australis are borne in terminal clusters, each consisting usually of two, four, or eight blooms at the tips of the short lateral growths. Moreover, the individual flowers of E. australis are nearly half-an-inch long and a vivid red crimson. The foliage is a much darker green than that of the Mediterranean Heath, the habit of the shrub is looser and more open, and it does not often grow taller than four feet. There is a recently discovered white form of E. australis which is said to be remarkably beautiful.

In our warm, free soil, we can always count upon the lovely St. Dabeoc's Heath (Daboecia polifolia) being in bloom in early May, more especially those plants which were trimmed back in late autumn. The white variety is always fully a fortnight earlier than any of the others of this group, and I have had it in bloom in April. It is also the last to go over, maintaining an unbroken succession of blossom from spring to November.

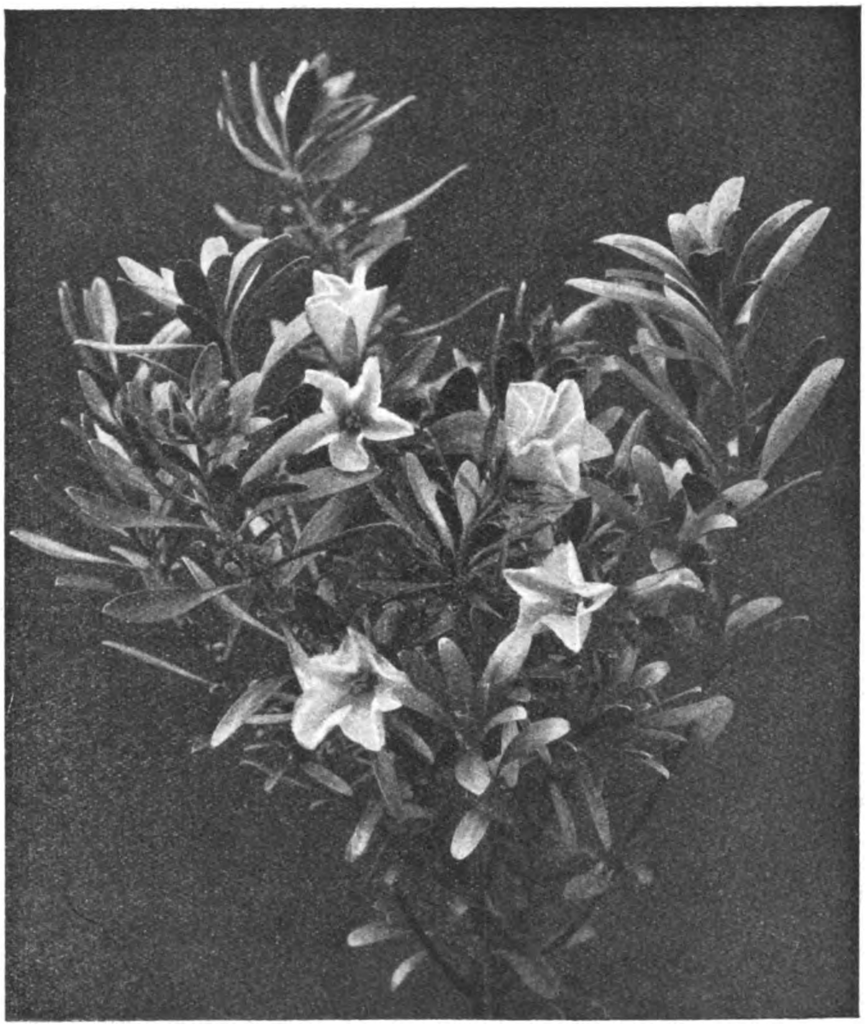


FIG. 60.—CONVOLVULUS CNEORUM.

CONVOLVULUS CNEORUM.

THOUGH one of the oldest of flowering shrubs introduced to British gardens this Convolvulus (Fig. 60) is still able to hold its own among the choicest. C. Cneorum generally grows about two feet high, and its abundant foliage of oblanceolate leaves is beautifully silvery, more especially during winter and spring.

The flowers, which first open in early summer and continue for some months, are of the orthodox trumpet-shape of the genus and nearly two inches across at the mouth. In colour they are a creamy-white, flushed with irregular stripes of pink, and the base of the interior is yellow.

C. Cneorum is not quite hardy everywhere but it will endure fairly bleak climates if given the protection of a wall, or some other bush, and it should be planted in a freely-drained, rather poor, stoney soil. Since young plants may easily be raised from cuttings struck in a cold frame at the end of summer, a reserve stock may always be available in districts where winters are treacherous.

The plant is sometimes cultivated as a pot specimen for the greenhouse.

CISTUS LADANIFERUS VAR. IMMACULATUS.

THOSE who are planting Cistuses this spring—and there is no better season for planting where climatic conditions are not of the best—should not overlook this fine variety. It is like the type in every respect save that the flowers are unblotched and larger. Last year many blooms were measured, and whilst the majority were rather over 4 inches across, some were close upon 5 inches in diameter, or very nearly as large as those of Romneya Coulteri.

There is an elegance in the habit and foliage of C. ladaniferus which, I think, is not equalled by any other species or hybrid, and the variety alluded to is not less notable in that respect. Though we have grown C. l. immaculatus (albiflorus) for many years, it has not formed seed, which seems odd, inasmuch as the type seeds freely. *A. T. Johnson, Ro Wen, Talycafn, North Wales.*

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SPARTINA TOWNSENDII.

THE subject of the present article, Spartina Townsendii, sprang suddenly into public notice in the year 1907 when Lord Montagu of Beaulieu drew the attention of the Royal Commission on Coast Erosion to its remarkable powers of invading tidal mud and holding silt. He called it "Rice Grass" and supposed it to have been introduced into this country accidently by shipping. The facts of its occurrence at that time were embodied in a most informing paper by Dr. O. Stapf which appeared in the *Gard. Chron.* of January 18th, 1908. In the article referred to—as the plant could not be matched with any known existing species or variety of Spartina—Dr. Stapf propounded the theory that S. Townsendii was a hybrid which had originated spontaneously from our indigenous S. stricta, and the American S. alterniflora, a species introduced to our shores in 1829. In the absence of new evidence the status of S. Townsendii has remained unsettled up to the present time.

Since the time of Dr. Stapf's publication, the "Rice Grass" has consolidated its position in all the enclosed waters about Southampton and the Isle of Wight. It has spread enormously in Poole Harbour (for which it was first recorded in 1899), occupying in turn all the bays and the higher mud banks which converge on the deeper central parts. It entered into Christchurch harbour in 1913, and marking time for a few years, began its expansion in 1918 and is to-day represented by several dozen clumps.

Pagham Harbour, on Selsey Bill, was invaded in 1918, and the spread has been marked and continuous ever since. Further east, an isolated plant was reported near the jetty of Rye Harbour in 1922 and it appears to be spreading.

The above are the known natural habitats of the plant in this country.

By deliberate introduction the plant has been established on the East Coast at Sheerness; in the Colne, near Alresford (Essex); at Manningtree in the Stour estuary; and on the Wells marshes (Norfolk). On the West Coast at Clevedon (Somerset), and in the Dovey estuary (Mid-Wales). The object in several of these cases was by stabilising mobile mud to render adjacent properties more secure; in others the introduction was dictated by motives of curiosity to see whether the plant would acclimatise. Thus in the spring of 1911 I placed a few plants in mud at Blakeney Point, Norfolk. They were, however, eaten down by rabbits that same summer, and the attempt has not been renewed.

In its south coast localities Spartina Townsendii readily propagates by seed. It flowers very freely throughout the summer and autumn, and the grain when ripe comes away from the spike enclosed in its glumes. These spikelets accumulate in enormous numbers on the drift lines in late autumn, and by mid-November the young seedlings are already sprouting between the glumes.

The spread of the plant is mainly effected by this agency, the seedlings in due course expanding into tufts a few feet in diameter—a phase very characteristic of the earlier stages of colonisation. This is followed by a filling in of the gaps by seeding, and eventual confluence of the tufts into meadow-like expanses, traversed here and there by open passages. Newly established tufts and marginal plants commonly reach a height of 2½ feet to 3 feet at flowering, but with the establishment of dense, continuous meadow, the flowering height is much reduced.

With rare exceptions this Spartina holds permanently the ground it has won, and continually extends into uncolonised muds, the surface of which does not lie more than 2 to 3 feet below high water mark. The Spartina zone is vertically so restricted that the meadows rarely, if ever, disappear entirely from view at high water, except perhaps at the one or two highest spring tides of the year. The deeper lying muds carry no Spartina, and if planted therein it usually dies. In this respect its behaviour is in agreement with that of other halophytes, *i.e.* a refusal to grow outside the zone within which it naturally occurs. Unless, therefore, it changes its nature (of which there is no indications at present), the settlements of Spartina will be restricted to the upper three feet of the coastal zone. On this basis it should be possible by a proper survey to estimate the area destined eventually to be colonised in any given locality.

In Poole Harbour where Spartina has been operating for twenty-four years many fishermen believe that the full area to be covered is already blocked out, i.e., that whilst for many years to come it will go on filling in the shallows of the arms and bays, it has already attained its main extension so far as the central area of the harbour is concerned. And remembering the intimate knowledge which from their avocation these men possess of the detailed relief of the harbour bottom, it seems probable that the fishermen are right.

What has happened so far is what was to be expected. With the appearance of Spartina meadows, the channels have become deeper because the mobile mud that was formerly carried hither and thither with the flow and ebb of the tide has now been fixed in the Spartina beds. What will ultimately happen can only be conjectured. Many once flourishing harbours have become silted up in consequence of continued rise of level under the agency of halophytes leading to the exclusion of an appreciable amount of tidal water. Such tendency is greatly aggravated when parts of a harbour are reclaimed, i.e., separated from the harbour by the construction of sea walls. In times to come reclamation of the arms of Poole Harbour will be an easy and tempting operation, and, it may be added in the light of what has occurred elsewhere, will probably be effected unless the fishermen of those days, the real guardians of the the harbour, offer an uncompromising opposition to all such encroachments.

The exceptions referred to above of Spartina failing to hold its ground are local and unimportant, and cannot be regarded as an indication that such relaxation is likely to become general. So far as we know, Spartina forms the end of the succession; at any rate it is not recorded that any other plant or combination of plants replaces it. But perhaps a long enough period has not yet elapsed. Recently I was shown areas on the Hythe side of Southampton Water—a few acres in all—where the mud had become once more bare by the death, *in situ*, of the Spartina, the weathered stools of which were still recognisable level with the mud. This effect was attributed to oil fuel discharged in the locality, though the explanation lacked definite proof. However that may be, the areas in question were in course of recolonisation by fresh plants of Spartina, so that permanent denudation is not involved.

The other check to Spartina can be seen in Poole Harbour, and doubtless elsewhere. Where mudbanks in exposed positions and liable to the scouring action of waves have become covered with the grass and the level has been raised by silting, the edge of the settlement is subject to undercutting and the mud is washed away from the roots. In this way a fringe of Spartina is loosened and is liable to be turned right back over the adjacent edge of the Spartina field. Ultimately these fringes break away and drift down the harbour. The injury caused appears to be slight, and in the aggregate to be of little—perhaps negligeable—effect.

The position on the South Coast at the present time is that the protected waters from Chichester to Poole harbour are in full occupation and that other waters are gradually being involved and will in time be overrun.

On the East Coast, where several plantations have been made, the time is not ripe for a final judgment as to acclimatisation. Reports that reach me, supplemented by my own observations, make it doubtful whether Spartina has the power under East Coast conditions to reproduce the miracle worked at Southampton.

On the West Coast (Mid-Wales) the introduction is recent. The plants established well (1921), and expanded rapidly, but the success of the experiment will only be demonstrated when independent propagation by seed is confirmed. *F. W. Oliver.*

(To be concluded.)

MARKET FRUIT GARDEN.

FEBRUARY, with only 0·87 inch of rain and snow, was the driest month we have had since last June. Here in East Sussex snow sufficient to cover the ground fell on three days, whilst night frosts and cold, strong northerly winds were the rule. It was an unusually severe February for this district. From a fruit grower's point of view, however, it was quite a good month. There were considerable periods when the ground worked well, so that most of the arrears of planting were overtaken and a start made with the cultivation of established orchards. The cold morning hours, when the ground was bound with frost, were utilised for wheeling manure to place round the newly-planted trees and bushes. At the same time the cold weather held the trees healthily in check. Fruit buds have hardly moved at all, Plums, which are often forward at this date, still being completely dormant. This will mean a late blooming period for all fruit trees, and that is often the forerunner of a good crop. When we couple with this the fact that a bountiful harvest is due after last year's failure, it may be taken that the season's prospects are very favourable so far as we have gone. Cob-nuts have given the first sign of what, it is hoped, may be expected of all classes of hardy fruit. They have been full of bloom throughout the month, both catkins and female flowers being fully developed at the same time; and, so far as can be seen, they have not been injured by the severe weather. I should like to see the remainder of the fruit bloom held back for a time yet, and then brought on with a rush. Too often it gets to an advanced stage, and is then held in check by a cold spell; and this gives insect pests an opportunity to do their worst.

Surface Rooting.

I find that the roots of fruit trees are unusually close to the surface this season. Probably this is because the soil has been wet for such a long time. Last summer, in my district, there was never any need for the roots to go deep in search of moisture. This raises a problem with regard to cultivation. It was my intention to plough between the rows in all the older orchards; but only one has been done, and that will be the last. That orchard was dressed with shoddy in the winter of 1922, the stuff being ploughed under. The recent ploughing, though not more than three inches deep, has brought up to the surface some of the remains of the shoddy, which is a lasting manure. I find that this is matted with fibrous roots of the trees—all broken off, of course. It seems probable, therefore, that all the good resulting from the dressing of shoddy has been undone by the ploughing. But what is one to do? It is obvious that the trees need and appreciate the shoddy; and the material is useless unless placed where the roots can get into it; yet these roots are bound to be injured by subsequent cultivation. I fancy that even shallow work with a cultivator would have broken many of them, though not in such wholesale style as with the plough.

The only solution of the problem that I can suggest is this: Apply shoddy, or other bulky lasting manures say once in three years, and plough in fairly deeply. In the intervening years use more soluble fertilisers which need not be ploughed in, and do shallow surface cultivation only. Thus the roots could enjoy the shoddy undisturbed for three years, at the end of which it should be entirely decomposed, and the roots might, perhaps, have gone deeper.

Anyhow, I have finished ploughing for this season. Fortunately, the rest of the orchards are not very weedy, and the frost has made the soil work well, so that spring-tined and other cultivators can be used. I am convinced that an enormous amount of damage is done amongst fruit trees and bushes by ploughing, digging, and other forms of deep cultivation. We encourage the roots to come to the surface by manuring, and then destroy them by mechanical means.

Soil Variations.

Every fruit-grower is familiar with the variation in vigour and habit to be seen amongst individual trees in a row or block of one variety. This is generally attributed to differences in the stocks on which the trees are worked. This is often a cause, no doubt; but I fancy the importance of this factor has been exaggerated in recent years. In many cases variations in the soil are responsible for the behaviour of the trees. I write this after looking at the holes dug ready for planting trees in a new plantation of about two acres. The variations in soil over a small area are remarkable. In most cases the holes did not get below the loam top soil; but in some pure clay appeared at the bottom, and in others an irony sand-stone. Where the clay occurs, the top soil is naturally much wetter than on the rest of the field. Now it is obvious that, even if the trees to be planted were on one of the new standardised stocks, they would differ markedly in vigour and habit in a few years' time. Those on the bad spots will remain small, and very likely some of them will be ruined by canker, whilst the trees on the good soil will thrive and grow big. In most of my plantations there are patches where the trees never do really well; but there are probably not many fruit-growing districts where the soil varies quite so much over small areas, either in depth of top soil or nature of subsoil.

Disease Resistance.

In the course of an address which I recently had the pleasure of hearing, Dr. Bewley, Director of the Cheshunt Research Station, suggested that, in breeding plants for the production of fine flowers or heavy crops, we seem to have lost much of their old power to resist disease. He thought that, sooner or later, we should find it necessary to go back and breed disease-resistance into our modern varieties. I think this is decidedly the case with hardy fruits—Apples, for instance. In developing flavour and appearance we have lost the constitution which enables some of the old "local" varieties to resist fungous disease and withstand neglect.

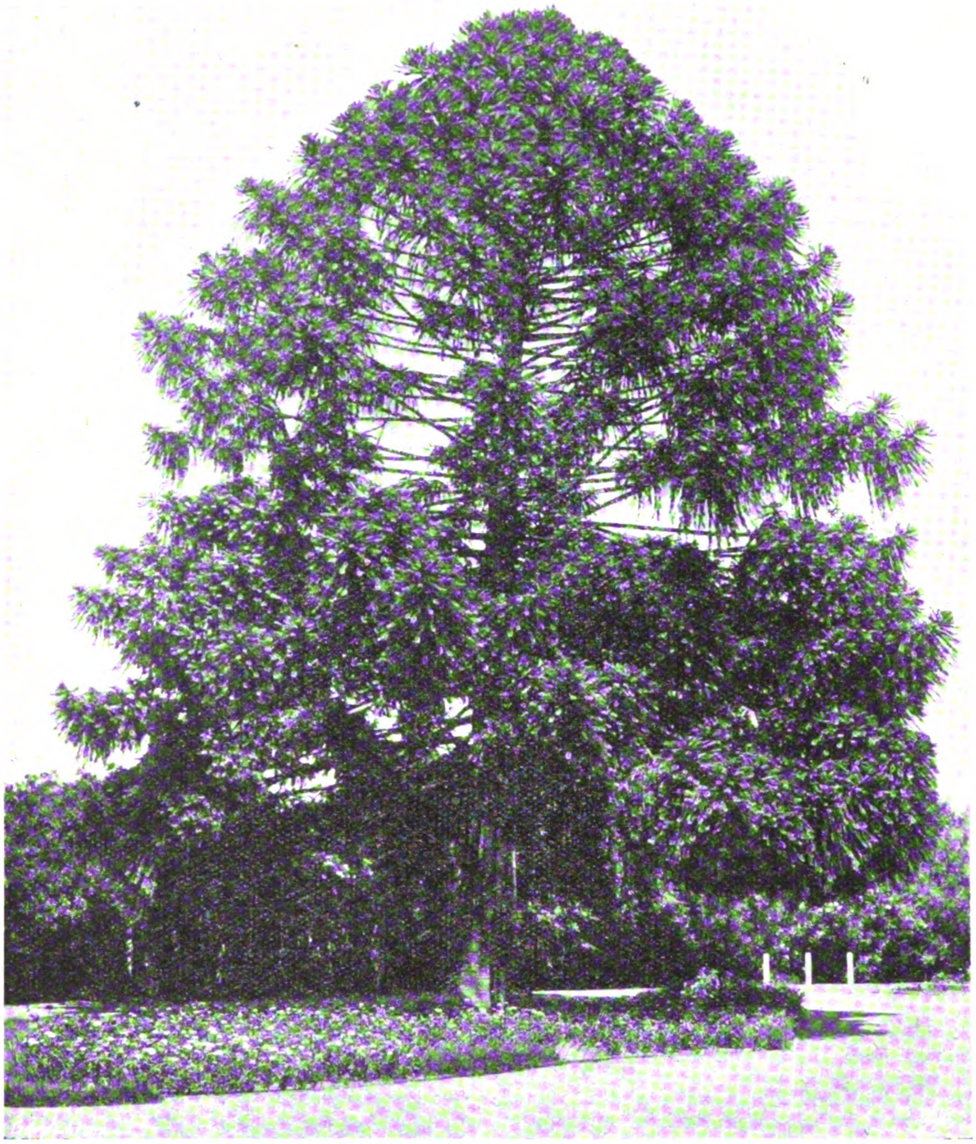


FIG. 61.—ARAUCARIA BIDWILLII IN THE ADELAIDE BOTANIC GARDENS (SEE P. 142).

There are small orchards scattered about the country which, in spite of neglect, crop very well. There is one less than a quarter-of-a-mile from my place. It consists of old trees on grass. It gets no manuring, no pruning, no spraying. Yet the trees are big and well-grown, they still make satisfactory growth, and they yield heavily with the usual tendency to alternate year bearing. With this example before them, I fancy that some of the local people believe that I am mad to spend money on spraying, manuring, etc. The difference is, I think, entirely in the varieties. This old orchard is composed chiefly of unknown or nondescript varieties, which would be practically worthless in a wholesale market; but they have a constitution which is lacking in the modern varieties. If my trees received the same neglect they would quickly become stunted and the fruit small and diseased. Nothing that I could do to them would ever make them grow so big as some of the old trees seen about the neighbourhood. The latter are evidently hardier and stronger-growing, and probably on more vigorous stocks.

In breeding our modern varieties flavour and appearance have been the aim. Disease resistance has been left out of account. Scientific breeders could give us this as they are doing in the case of Potatos and Wheat, though the process would no doubt take longer. I doubt if there is any other way, in our climate, of dealing satisfactorily with scab in Apples and brown rot in Plums, for instance. *Market Grower.*

THE FRUIT GARDEN.

PROTECTING WALL TREES.

The protection of wall-fruit is not always wisely carried out, and, while in some cases it is eminently satisfactory, in others it is sometimes quite the contrary. A common mistake, resulting in the destruction instead of the protection of the crop, is to attempt too much. The golden rule is to provide the least possible protection necessary, for it would always be better if a crop could be ensured without protection, not only for the saving of time and material, but also because the trees would not be liable to injury from over protection.

That protection is desirable at times is incontestable, but, in many cases, the trees are too much protected, with the result that their health is impaired at the very time when their strength is most needed, and loss of crop follows. Generally speaking, it is wise to be content with nets and copings and to employ these with caution that the trees may not be debilitated by their use. Damp is fully as injurious as frost to the blossom of wall-trees, hence a coping is doubly useful as a screen against the fine, cold drizzle which often falls at this season, and also to check radiation and thereby tend to the preservation of an equable temperature near the wall. Peach trees in a thoroughly healthy state, with well-ripened wood, will withstand several degrees of frost without harm, even when in flower, provided the air is dry at the time.

While admitting that protection in skilful hands is of the utmost value, a point which is far more worth the cultivator's consideration than the relative merits of nets, canvas, etc., is how to render protection unnecessary or less necessary, and this is comprised in good cultivation.

The training in of a superfluous number of shoots is a grave error, as it results in soft, unripened growths. The prudent grower will allow every shoot ample room for full development, will never allow vermin to obtain a lodgment and sap the vitality of his tree, but will avail himself of every favourable circumstance of the season of growth to ensure the production of perfect wood that will be capable of bearing a few degrees of frost without injury. Further, the untying of trees before midwinter, and keeping them from the wall until the buds are ready to swell is a commendable practice. Trees thus treated are much safer during periods of bright, warm, weather than those left to the influence of the heat that the wall acquires from the sun and thus forced into early flowering. *W. Auton.*

COLOUR IN CHOICE FRUITS.

Soils and certain stocks have an intimate relation with the production of high colour in Apples, yet many varieties of Apples develop high colour on any kind of stock, and under any form of training or culture. Root-pruning or the checking of deep rooting on the part of the stock has much to do with the production of rich colour found in many Apples. Many pages have been written on soils, stocks and roots in their relation to colour, but little has been said about thinning, and yet, I believe, this operation exerts a powerful influence, as colour is rarely perfect where the quality of the fruit is second-rate. Overcropping an Apple or Pear tree results in the fruit being small, flavourless, and deficient in colour. If vines which have produced well-coloured Grapes year after year are allowed to bear too freely the berries remain red and fail to finish; the same is to be seen when Peaches and Nectarines are overcropped. The fruits promise fairly well until stoning time, when they remain small and fail to develop that dense, deep colour the experienced grower likes to see. In due course they commence dropping until the tree is left with half a crop of small Peaches or Nectarines, as the case may be. The mischief is caused by the tree receiving a check at a critical stage. The wood may have become strong, but the fruit remains small, and does not colour well, but goes through the second swelling quickly and ripens prematurely. Forced Figs suffer the same, only in an intensified form, by years of bad treatment. If the fruiting shoots of a Fig are thoroughly ripened each one develops three times as many fruits as are necessary, and if the grower leaves them all to swell, thinking that a large percentage of them are sure to drop, he will find that the majority will fall, and that nothing he can do will prevent it. In this way the grower often loses all his fruit when a full crop might have been secured by timely thinning.

Melons are no exception to the rule: these fruits set freely, and if they are not thinned, swell for a time, but when the roots feel the strain the Melons remain small, seldom net properly, and are deficient in colour and flavour. Bad culture may have something to do with their collapse, but in many instances it can be traced to overcropping. One might give numerous instances of loss of quality as well as colour by overcropping . quantity alone is of no use, we must have quality also. A new season has just commenced, Vines, Peaches, and other choice indoor fruits will require this attention of thinning the fruits. Apples, Pears and Plums will follow in due course and all will repay for judicious thinning. Every fruit grower should be capable of thinning to an extent that will ensure a full crop of the finest quality without distressing the tree on the one hand, or allowing it to become gross on the other. The advantages do not end here, one reads year after year that hardy fruits in the garden are full, average crops whilst orchard trees are occasionally a failure. The first trees are close at hand, and consequently the fruits get thinned, whereas the orchard trees are often overlooked and the large crop exhausts the tree. Such trees usually require a season to recuperate, and this is one of the chief causes of biennial cropping, even in years when the weather of spring is favourable to the setting of the fruits. *F. Jordan.*

VEGETABLE GARDEN.

THE CHINESE YAM.

The Chinese Yam Dioscorea Batatas, although a productive and useful vegetable, will probably never be extensively grown in this country owing to the trouble attending its cultivation. Small tubers are of little use, and to produce those of serviceable size good cultivation is necessary.

The plant thrives best in a deep, sandy soil that has been well enriched with organic manure, and should be grown on ground that has been trenched and heavily manured for a previous crop. The end of April or beginning of May is soon enough for planting; if the young shoots are injured by May frosts, they receive a great check, and are a long time in recovering.

Small, white tubers, or the thin ends of large tubers should be inserted with a dibber about a foot apart and three inches deep, allowing a distance of thirty inches between the rows. Stakes about 5 to 6 feet long should be provided to support the vine, and growth should be encouraged by hoeing the soil on frequent occasions.

Frost destroys the growth in late autumn, but it is not necessary to lift the roots immediately, in fact, there is some evidence that the tubers increase in size after the loss of foliage. Lifting is a laborious process and can only be successfully accomplished by opening a trench at the end of the row to enable the operator to dig around each group of tubers, and remove them without injury. *W. Auton.*

MUSHROOMS.

Several questions have been asked recently as to the cause of failures in Mushroom growing. One very frequent cause is the maintenance of too high a temperature, especially during cold, frosty weather. A little extra warmth may be necessary to keep out the cold or prevent the heat of the beds declining too much, but rather than raise the temperature to 58° or 60°, I would prefer it to drop to 48°. Too much fire heat rapidly exhausts both the atmosphere and beds of moisture. To counteract these influences, it is the usual practice to damp the walls, floor and often the beds daily; but this is of little avail. The most productive beds are those that retain sufficient moisture in the manure to ensure its steady decay, accompanied by slow generation of heat; while the first to fail are those that rapidly dry out. If a bed requires much water after it has commenced to produce Mushooms, it will soon fail, as the water will also cool it to an extent destructive to the spawn. In most instances too much moisture, and the bed being a little too warm at the time of spawning, or by the heat rising soon after, is the cause of many Mushrooms turning brown and refusing to make any further progress. Low temperature will check growth, but not prove destructive. With a temperature of 48° to 50° in very cold weather and 5° higher when it is warmer outside the loss of moisture is less marked, and it will not be necessary to damp down often. If the beds are surfaced with strawy litter, the soil may safely be moistened through this, should it need watering, or a gentle syringing with tepid water, slightly impregnated with salt, may be all that is needed. Much depends on the Mushroom house. A well-built and carefully thatched house requires but little fire heat, especially when fresh beds are made every month. When fire heat is not employed, syringing is not necessary or advisable, the beds remaining in bearing two or three months.

The best material for making the beds is horse manure containing plenty of litter, and all straw less than 9 inches or a foot in length should be allowed to remain in the manure, which should be turned every other day for a week, or until it smells sweet.

The beds are best made on the floor of the house, especially from July to September. A depth of 9 inches is sufficient for those months; later beds may be 15 inches deep and the material should be made firm. Spawning should not be done until the heat has declined to 75° and the portions of spawn should be inserted at a depth of 2 inches to 3 inches. The use of fresh spawn is advisable.

If the surface of the bed has become damp and wet through steam condensation, the top few inches should be turned upside down and the bed spawned when the temperature has declined to at least 75°. Make the bed firm and place the soil over it as soon as it is finished. Good, loamy, soil containing plenty of fibre is the best material for covering the beds, and it should be placed to a depth of two inches.

Mushroom beds vary greatly as to the time they come into bearing; if the manure has been suitably prepared and the beds made in the proper manner, good crops will follow sooner or later.

There should always be a current of air through the house unless the outside temperature falls below 50°. Fungous disease and woodlice are amongst the chief pests which attack growing Mushrooms. Hot lime wash and cleanliness helps to keep the fungous pest in check; boiling water, decayed boards placed one on top of the other as traps and examined every morning will greatly reduce the latter. *F. Jordan.*

NURSERY NOTES.

MESSRS. COWAN & CO.

THE nurseries af Messrs. Cowan & Co. are devoted solely to the growing and raising of Orchids and although situated within eight miles of Charing Cross it afforded us a pleasurable surprise to find the plants in such wonderful vigour and health. Old Southgate comes well within the London fog region and Orchids at least do not appear to suffer under what cannot be regarded as the purest of air. Nevertheless we have rarely seen a better collection of plants. The nursery consists of some fifteen large houses, and Cymbidiums, Cattleyas, Laelio-Cattleyas and Brasso-Cattleyas are grown on a very extensive scale. Of Cymbidiums there were many fine forms including one of C. President Wilson (Alexanderi × Lowianum) with bronze sepals and petals, the lip marked with a deep red—almost crimson—blotch. Good forms of C. Pauwelsii and C. Dryad were noted and a combination of these two hybrids has given C. Redstart, an outstanding flower with a large white lip, spotted and lined with rich red, and with sepals and petals of a deep rose colour. Others worthy of note were C. Sybil (eburneum × Pauwelsii), pale yellow flushed with pink; C. Castor (Woodhamsianum × insigne), blush sepals and petals, marked with red spots and lines on the lip; C. Butterfly (insigne × Lowio-grandiflorum), pale yellow, with scarlet markings on the lip, and carrying a graceful spike of thirteen well proportioned blooms; C. Vesta (Alexanderi × insigne), white; C. Miranda (Alexanderi × Lowio-grandiflorum), a fine plant with bronze sepals and petals and well defined scarlet markings on the lip, and C. Huttonii, a scarce species which produces drooping spikes of distinct flowers.

The Odontoglossum houses contained many noteworthy hybrids including a number of fine forms of O. eximium, with heavily blotched flowers, and O. Aireworth. O. Rosina (eximium × Lady Pirrie) was exceptionally good, the flowers being of solid claret-red colour with a clearly-defined white margin; O. Nanon, a very large, finely-shaped flower of deep claret-red, edged with white; O. Zenith (Olympia × percultum), a beautiful hybrid with a white ground, marked with bluish-purple blotches; O. Tityus (crispo-Harryanum × President Poincaré), a very fine, heavily blotched flower, and O. Seraphis (eximium × Dusky Monarch), a deeply coloured variety with conspicuous purple blotches on a white ground, were also noteworthy. There were also large batches of O. crispum xanthotes, O. Cooksoniae, O. Lilian and O. Lambeauianum, together with Odontiodas in considerable numbers and represented by many of the finest hybrids.

Miltonias were to be seen in excellent condition and included exceptionally good forms of M. Charlesworthii, M. Hyeana, M. St. André and M. Bleuana, and among the last named was the beautiful variety Reine Elizabeth which has received a F.C.C. of the R.H.S. The flowers, of large size, are white, tinged with rose, the greater part of the surface of the sepals being covered with violet. Phalaenopsis amabilis Rimestadiana is another subject grown in quantity and the fine examples of this Orchid are generally one of the features of this firm's exhibits in late spring. It is the best of the white Phalaenopsis and the throat of the flowers is highly coloured with bright yellow.

The stocks of Cattleyas, Laelio-Cattleyas and Brasso-Cattleyas are among the largest in the country and numbers some twenty thousand hybrids raised from the finest parents (Fig. 62). Large batches of B.-C. British Queen and B.-C. Apollo have been raised and promise many fine things, while Brasso-Laelio-Cattleya Jupiter with many other hybrids have proved a great attraction in Messrs. Cowan & Co.'s exhibits at Chelsea for the past two years. Cattleya Tityus (Octave Doin × Enid superba) has gained for this firm many honours, and a very fine form was noted possessing deep-lilac sepals and petals and a bright claret lip. The beautifully coloured and white forms of C. Trianae were particularly striking as was also C. Douai (intertexta Juliettiae × Susanne Hye de Crom), which carried finely shaped flowers measuring fully six inches across and of the purest white. Another plant of note was C. Hassallii alba, the dark magenta lip making a bold contrast with the pure white of the sepals and petals.

The Cypripedium house was well filled with good things, many of the hybrids having been granted the highest awards both in London and Manchester. A few we noted include C. Nirvana (Alcibiades × aureum), amongst the largest and finest of the greenish-yellow Cypripediums; C. Boltonii, the finest white of the niveum section; C. Bedfordiae (Actaeus revoluta × Shogun), a very striking flower, and C. Memoria F. M. Ogilvie var. The Premier (Curtmannii magnificum × Pyramus magnificum).

Masdevallias, Laelias and Dendrobiums, together with a varied collection of miscellaneous Orchids, were also to be seen, and a peep into the seed-raising house gave evidence of the up-to-date methods employed by Messrs. Cowan & Co., and, as the best varieties only are used as parents, there will doubtless be many beautiful plants to perpetuate the good name of the firm for many years to come.

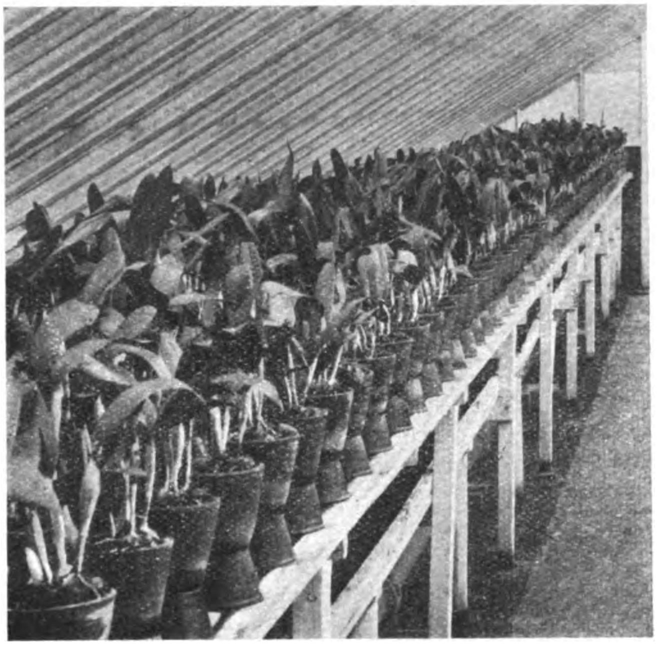


FIG. 62.—SEEDLING ORCHIDS IN ONE OF MESSRS. COWAN AND CO.'S HOUSES.

HOME CORRESPONDENCE.

Loss of Fragrance in Musk.—Mr. Holmes' article on this subject in your issue of Feb. 9, p. 78, is full of interest, but one or two of his statements call for comment. He remarks that "one of the reasons why the fragrant plant has almost disappeared seems to have been the introduction of a robust hybrid form of it in 1887 by Messrs. Harrison and Sons of Leicester." This statement is then followed by a quoted letter written recently by Mr. J. Harrison, who distributed the hybrid under the name of Mimulus Harrisoni. In this letter it is stated that "it has never been noted to have any musk scent with it" and that a seed pod has never been seen by Mr. Harrison, who, by the way, also states he "has never seen the hybrid for years and is afraid it is lost to cultivation." In view of the above remarks it is of interest to quote the description of Mimulus moschatus Harrisoni given in the *Floral Magazine* for 1887, plate 248:—"That it is a most valuable ornamental plant is in some measure attested by its having received First Class Certificates from the Royal Horticultural and from the Royal Botanic Societies. The plant is a hybrid between the large-flowered Musk of our cottage windows and the spotted form of Mimulus luteus, known in gardens as M. maculatus, and when we say that it has the delicately fragrant leaves of the first parent and the large, showy flowers of the spotted Mimulus some idea may be formed of its value as a plant for conservatory decoration, or even for the embellishment of the window garden, a fact which will render it peculiarly valuable to plant growers for market, as well as to amateurs and villa gardeners, who grow their own flowers. As delicately perfumed as the Musk plant, it far exceeds it in its flowers and possesses the additional merit of being more permanent, since strong roots can be forced at all seasons and even during the winter months, when its fragrance recalls the days of early summer. Its culture is as easy as that of the common Musk plant of the cotter's window, and, considering its other points of excellence, it does not seem improbable but that this variety will entirely supersede other kinds when it becomes better known. Our coloured figure by no means exaggerates the habit and general floral characters of the plant as grown in a cool temperature." Those who recall Harrison's Musk will agree that it could not be readily mistaken for the common Musk. The writer well remembers seeing Mimulus Harrisoni five or six years ago growing in the bog garden at the foot of the rockery in the R.H.S. Gardens, Wisley, and if the plant is still in existence it would be of interest to compare it with the plate given in the *Floral Magazine.* In that work the flowers are depicted as having reddish-brown streaks in the throat, and they measure from 1 inch to 1¼ inch across. There is no note as to the scale on which the figure has been drawn, but in comparison with the bulk of the plates in a dozen volumes it would be fairly safe to assume that the flowers have not been enlarged in any great degree. *R. K.*

Young Lads and Horticulture.—May I assure *Journeyman* (p. 122) that his experience is the exception to the rule. During the past fifteen years

I have worked under nine different head gardeners and with one exception I found them willing to lend me their books, to show by practical demonstration their methods, and to give me of their experience voluntarily, that which had cost them much to acquire. For the past twenty years as head, with always a few lads in the gardens, I have endeavoured to find them a better place when they leave. The letters I could show *Journeyman* would convince him that the vast majority of head gardeners not only pay a reasonable wage but take a sincere interest in their welfare. *Francis Grant.*

Almond Flowers.—I send you some sprays of Almond flowers from a very old tree that was blown down in a gale on January 26. Branches were cut and placed in water in a house having a temperature of about 50°. In about ten days we had a nice show of flowers, and as the branches were arranged among various plants the effect was very pleasing. I have found Almond branches so treated very useful in decorating the Town Hall. The old tree referred to will be greatly missed, because, in a public garden daily visited by certain people, some object is sure to strike them. For many years one visitor has entered in his diary the date of the first opening of flowers on this tree. Treated as suggested, I find the Almond flowers are much larger than those which open naturally, some of them measuring 1½ inch across, while the colour is more delicate. The Almond mentioned in Holy Writ, was by the Hebrews called *shakad*, signifying to watch, or awake, because after the rigours of winter it is one of the first of plants to hail the coming of spring with flowers. It is considered that the rod of Aaron was of the Almond tree, as were also the rods which the princes of Israel bore. *C. A. Marchant, Brenchley Gardens, Maidstone, Kent.*

[The flowers were of large size and exquisite colour.—Eds.]

Trial of Beets at Wisley.—I notice with very great regret that the suggested trial of Beets at Wisley (for use as cooked vegetables as distinct from salad purposes) announced in last year's R.H.S. *Book of Arrangements* has been dropped. No reason is given for this change on the part of the Council, but it has been suggested that as the trial would only require imperfectly developed plants for the purpose suggested it would not be worth while to devote valuable space to such a purpose. Such an idea can only have arisen from a misconception of the object in view in the minds of those who suggested that the trial should be made. Briefly that was as follows: -the rows should be, say, twelve feet long and fifteen inches apart. The sowing should be sufficiently thick to secure a full plant. When the young plants are from four to six inches high they should be thinned carefully leaving the standing plants three inches apart. The thinnings should be cleaned, dressed and cooked in the same manner as young Spinach and served in the same fashion. When the plants which have been properly tended in the meantime are about one inch in diameter, pull out every alternate plant and cook and serve as buttered Beets in the manner set out in *Gard. Chron.*, May 19, 1923, the leaves of the lifted plants to be treated as Spinach, Swiss Chard and Spinach Beet. The remaining plants should be carefully grown on until they are fairly well developed, at which time the final cooking test should be made. The roots should then be cooked and served like Turnips. The trial would only occupy a limited space and there would not be any waste. It is not too late to carry it out this year. The article by Mr. F. J. Chittenden in *Gard. Chron.*, September 23, 1922 should be very carefully studied. *S. B. D.*

[The article to which our correspondent refers pointed out the great difference in flavour in varieties and types of Beets, and showed that a Beet for cooking should not be condemned because of its colour, for fine colour is not always an accompaniment of good flavour.—Eds.]

SOCIETIES.

ROYAL HORTICULTURAL.

March 11 & 12. Early in the morning of first day a heavy white fog enveloped the greater part of the metropolitan area, but by about noon it had given place to sunshine, consequently, when the Royal Horticultural Hall was opened to Fellows, the attendance was good and the display in the hall was lit up beautifully. Tulips, Daffodils, Orchids, hardy flowers, Cyclamens, Carnations, and Roses were features of a first-rate exhibition, and some idea of the importance of the groups may be gained from the fact that the various Committees recommended no fewer than four gold medals.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Sir John Rutherford, and Messrs. Gurney Wilson (Hon. Sec.), R. Brooman White, J. Wilson Potter, R. G. Thwaites, G. F. Moore, H. T. Pitt, H. W. Smith, F. K. Sander, J. C. Cowan, J. E. Shill, Charles H. Curtis, A. McBean, T. Armstrong, Stuart H. Low, and C. J. Lucas.

Awards of Merit.

Odontioda The Torch (*Odontoglossum ardentissimum* × *Odontioda Sanderae*). A handsome hybrid with shapely flowers of good size and form. The general colour is rich crimson maroon, with white tips to the sepals and petals and a white apex and margin to the front portion of the lip; crest deep gold. Shown by Messrs. Sanders.

Cymbidium Alexanderi var. Princess. A pretty variety of a popular hybrid. The flowers are rich pink, with deeper lines of this colour; the lip is heavily marked with bright red brown near the front margin, and has a pale lemon-yellow crest. Shown by Messrs. J. and A. McBean.

Cymbidium Ceres rubrum (*I'Ansonii* × *insigne Sanderae*). A beautiful variety, with bright reddish rose or vivid pink flowers, the sepals and petals being veined with a deeper shade. The lip is white, with bright brown spots on the apical portion. Shown by Messrs. Sanders.

Cymbidium Ringdove var. Ruby (*Dryad* × *Miranda*). A very pleasing and distinct form in which the beauty of the rose-pink shading of the sepals and petals is enhanced by the numerous maroon spots and markings on the front and side lobes of the white-ground lip.

Cymbidium Linnet var. Olive (*Alexanderi* × *Holfordianum*). Undoubtedly one of the finest of the splendid Cymbidiums shown on this occasion. The flowers are of the largest size and the widely spread sepals and petals are clear olive green, while the large cream-coloured lip has a few dots of red-brown.

Cymbidium Macaw (parentage unknown). A handsome, large flowered hybrid with cerise-rose coloured flowers, with deeper veinings on the sepals and petals. The lip is creamy white with a broad, rich crimson-brown mark of irregular horse-shoe shape near the apex.

Cymbidium Redstart var. Rosy Gem (*Dryad* × *Pauwelsii*). A charming deep rose-pink variety with a pretty shading of colour in the sepals and petals. The lip is white, with yellow crest and a few deep rose-red dots.

Cymbidium President Wilson, Westonbirt var. (*Lowianum* × *Alexanderi*). A dark hued variety in which the green sepals and petals are heavily shaded or lined with bronzy green. The clear, cream-coloured lip, and its deep red-brown blotch at the apex, form a fine contrast to the sepals and petals.

The five foregoing Cymbidiums were exhibited by Sir George Holford (gr. Mr. H. Alexander), Westonbirt, Tetbury.

Groups.

Sir Jeremiah Colman, Bt. (gr. Mr. J. Collier), showed a very fine collection of Lycastes, the plants being splendidly healthy and carrying fine blooms. Some of the most attractive sorts were L. Lucianii, with creamy petals and red sepals; L. Skinneri var. Montrose, L. S. armeniaca, white; L. S. Robin, with red marked lip; L. S. alba var. Purity, and L. Mary Gratrix, with nine lovely blooms. Other interesting Orchids finely shown in the Gatton Park group were Cypripedium Maudiae, the rare Masdevallia decora, Coelogyne pulchella, [Sarcochilus Hartmannii and Laelio-Cattleya J. F. Birkbeck, with three magnificent, large-lipped blooms (Gold Medal).

A choice and interesting collection of Orchids shown by H. T. Pitt, Esq., Stamford Hill, contained specimens of Sarcochilus Fitzgeraldii, with white, pink-centred [flowers; Dendrobium atroviolaceum, the handsome D. Thwaitesiae, Sophronitis grandiflora, Epidendrum Endresii, a white form of Lycaste Skinneri, the quaint Lycaste gigantea, and numerous Odontoglossums and Odontiodas (Silver Banksian Medal).

Messrs. Sanders contributed a fine group of Orchids in which Cymbidiums figured extensively and beautifully. Some of the most attractive of the Cymbidiums were C. insigne, type, C. i. Minnewater, C. brugense aureum, C. Pauwelsii, a very fine form; the dainty C. albanense, C. Redbreast, with deep rose-coloured lip, and C. Ceres var. rubrum, a variety with rich, reddish-rose colouring. In addition to these, the group contained some excellent examples of Odontioda Bradshawiae St. Albans var., O. Grenadier, of brilliant hue; O. The Torch, a maroon and white-coloured hybrid between Oda. Sanderae and Odontoglossum ardentissimum; and O. Majestic. We also noticed Cattleya Evelyn Sander with two lovely white flowers, and the now uncommon Oncidium Cavendishianum with its broad, thick leaves and its long, branched spike of bright yellow flowers (Gold Medal).

Messrs. Charlesworth and Co. exhibited some particularly interesting and beautiful plants. A few that attracted special attention and comment were Sophro-Laelio-Cattleya Laura, with a pair of large, brilliant, old rose coloured flowers; a good form of Miltonia William Pitt, a large spike of Odontioda Alcantara, Dendrobium atroviolaceum, the purple Odontioda Mitrella, and the very fine Odontoglossum Prince Edward with eleven big blooms (Silver-Gilt Banksian Medal).

Cymbidiums were shown in delightful fashion by Sir George Holford (gr. Mr. H. Alexander), Westonbirt, Tetbury, and the group was greatly admired both for its variety and the high cultivation of the plants. Some of the newer hybrid forms of this popular group of Orchids showed that considerable progress is being made in new colour shades. Many of the varieties were submitted for awards and obtained recognition; these are described above. The group showed that Sir George Holford and Mr. Alexander are not satisfied with work hitherto accomplished, but are continuing their efforts to make this race of Cymbidiums of increasing garden value (Gold Medal).

Messrs. Cowan and Co. had the yellow Brasso-Laelio-Cattleya Thyone as the centre of attraction in an effective group. Laelio-Cattleya Hassallii alba was superb, its rich, deep purple lip contrasting finely with the broad, white sepals and petals; larger and scarcely less beautiful was Cattleya Tityus, while Cymbidiums in variety, Cattleya amethystoglossa, Miltonia St. André, and Lycastes were other fine subjects (Silver Gilt Banksian Medal).

Cymbidiums provided the main feature of an elegant group of Orchids staged by Messrs. Stuart Low and Co. Some of the plants were specimens of large size and bearing six or more big arching spikes of handsome flowers. The principal varieties shown were C. Pauwelsii, C. insigne, C. Alexanderi, C.

Ceres, and C. Sunset. Odontiodas and Odontoglossums were also shown and the group included plants of such interesting species as Cymbidium Devonianum, and Dendrobium Brymerianum, with its fringed golden lip. (Silver-Gilt Banksian Medal). Messrs. J. and A. McBean showed Lælio-Cattleya Eunice var. Constance, a lovely white L. anceps cross; and the brilliant Lælio-Cattleya Arcturus, for which a Cultural Commendation was awarded.

Floral Committee.

Section A. *Present :* Messrs. H. B. May (in the Chair), J. F. McLeod, D. Allan, H. J. Jones, Andrew Ireland, A. Turner, J. M. Bridgeford, W. Howe, E. R. Janes, J. B. Riding, W. H. Page, Hugh Dickson, W. B. Gingell, G. W. Leak, H. R. Darlington, D. B. Crane, W. Stephens, Chas. E. Pearson, and W. D. Cartwright (Sec.)

Section B. *Present :* Messrs. G. W. Loder (in the Chair), W. G. Baker, E. A. Bowles, G. Yeld, F. G. Preston, Arthur Bedford, C. Williams, H. V. Warrender, W. B. Cranfield, G. Reuthe, Jas. Hudson, W. J. Bean, E. H. Wilding, T. Hay, R. C. Notcutt, and R. W. Wallace.

AWARDS OF MERIT.

Viola odorata rosea.—A very pretty form of the Sweet Violet with flowers of a rose-purple colour, fragrant, with the spur nearly straight and obtuse. The leaves are cordate-ovate to reniform and are obtusely serrate. The plants were exhibited in pots and the habit is tufted and compact. The flowers, produced in goodly numbers, are borne on stiff, erect stems about four inches in height. Shown by Mr. C. C. Duruz, Hythe.

Cyclamen Giant White Wonder.—A magnificent strain of the Giant White variety, with gigantic flowers of the purest white, the segments measuring as long as four inches and nearly two inches broad. The flowers were faintly fragrant and there was a slight tinge of purple around the rim of the "eye." Shown by Mr. J. W. Forsyth, Putteringe, Luton.

Crocus aerius var Celeste.—A very pretty form of this Armenian species, with very narrow leaves, the margins of which are reflexed. The flowers are about three inches in height, and when fully opened measure about two-and-a-half-inches across. The segments are just over an inch in length and about three quarters of an inch broad. The colour is pale lavender, the inside of the outer segments being also marked with this colour at their apices, while the inner segments are white throughout, with a soft silky sheen. The flowers are sweetly fragrant and the highly coloured orange stamens lend additional beauty to the flower. Shown by Mr. G. Reuthe, Keston.

Crocus Tommasinianus var. pictus.—The colour of this charming variety is bright purple, both the inner and outer segments being similarly marked. When fully opened the flowers measure two-and-a-half inches across, and the segments are about one inch long by a half inch broad. The anthers are pale yellow and a little longer than the white glandular filaments. Shown by E. A. Bowles, Esq., V.M.H., Myddelton House, Waltham Cross.

Syringa Jan van Tol.—This new Lilac is of Dutch origin and was raised by Mr. Jan van Tol. The flowers are pure white, single, fragrant and developed in long trusses. It will no doubt prove a very valuable variety for garden decoration as well as for cut sprays, while as a forced plant it excels most of the white-flowered varieties now on the market. Shown by Mr. F. G. Wood, Ashtead, Surrey.

GROUPS.

A very bright group of forced flowering shrubs was staged by Messrs. L. R. Russell, Ltd., included Wistaria sinensis, Laburnum, Lilac, Azalea mollis in variety, the highly fragrant Viburnum Carlesii, and numerous named varieties of Clematis (Silver Banksian Medal),

Mr. J. W. Forsyth, made a charming and artistic group of Cyclamen arranged in fancy baskets and bowls. Of exceptionally fine quality were Giant White Wonder, which received an Award of Merit, Scarlet Queen, Silver-leaved Crimson, a beautiful foliaged variety, Mauve Queen, Salmon King, Ruby Queen, and a very fine rose-pink fringed variety (Silver-Gilt Banksian Medal). Messrs. John Peed and Son showed forced Azaleas, in pale yellow and terra-cotta shades, surmounted with specimen Wistaria, Lilacs and Palms (Bronze Banksian Medal).

Messrs. R. G. Cuthbert showed forced Azaleas edged with pots of Hyacinths (Silver Banksian Medal) and forced Lilacs in pots were staged by Mr. Endty, Boskoop, Holland, including Princess Clementine, double white; Mont Blanc, large white single; and Souvenir de la Spathe, lilac-mauve (Bronze Banksian Medal).

There were numerous exhibits of perpetual-flowering Carnations. Messrs. Keith, Luxford and Co. showed Cheerful, cerise pink, White Pearl, and Aviator scarlet, in good form (Bronze Banksian Medal); while close by the varieties Goliath, large salmon-pink flower; Topsy, scarlet; Belle Washburn, brilliant red; and Laddie were noted in the exhibit from Mr. C. Engelmann (Silver Banksian Medal).

Messrs. Stuart, Low and Co. staged a bright group in which White Pearl, Reginald Cory, cerise; Eileen Low, salmon-pink; and Sir Mackay Edgar, crimson, figured conspicuously (Bronze Banksian Medal); and Messrs. Allwood Bros. were responsible for a very neat display and showed excellent vases of Chintz, white ground, pencilled crimson-purple; Marion Wilson, a good fancy variety with yellow ground marked with scarlet; Coral Gem, rich apricot; Laddie, pink; and Topsy, crimson (Silver Banksian Medal).

A delightful group of forced Roses was staged by Mr. Elisha J. Hicks, and included amongst the varieties were Climbing Lady Hillingdon, Columbia, rose-pink; Queen of the Belgians, salmon-pink; Mrs. H. Stevens, white; and Premier, deep magenta-pink, and highly fragrant (Silver Banksian Medal).

A very choice collection of trees and shrubs were shown by Sir Arthur P. Vivian, Bosahan, St. Martin, R.S.O., Cornwall. The flowers had been cut from plants growing in open exposed positions, and included Magnolia Campbellii, large rose-pink flowers; Cytisus everestiana, with racemes of yellow flowers; Correa speciosa, Pieris japonica, Pittosporum Tobira, Clianthus pubescens, Rhododendrom barbatum, and the highly fragrant Azara microphylla (Silver Banksian Medal).

Mr. F. G. Wood showed a collection of Primulas and other alpine plants, and also staged Syringa Jan van Tol, a very excellent white variety which gained an Award of Merit, while from Messrs. Maxwell and Beale came Ericas in variety, Soldanella alpina, and numerous Saxifragas.

Messrs. Barr and Sons showed a miscellaneous collection of plants including Iris tingitana, Helleborus niger, Tulipa polychroma, Narcissus Queen of Spain, and Lachenalia Siam, which received an Award of Merit at the previous meeting (Silver-Gilt Banksian Medal).

Messrs. R. W. Wallace and Co. showed a miscellaneous collection of alpines and flowering trees, shrubs, and Conifers, the well-flowered specimens of Cerasus Hizakura and Cytisus kewensis attracting much attention (Silver Banksian Medal).

Messrs. Carter Page and Co. planted a small rock garden with Crocuses, Irises, and Saxifragas and other pleasing subjects in good form (Silver Banksian Medal).

Mr. Maurice Prichard showed Saxifraga rocheleana, Oxalis splendens alba, Narcissus minor and the double-white form of Hepatica triloba (Bronze Banksian Medal).

Primulas in many shades of colour were displayed by Messrs. Waterer, Sons and Crisp, Ltd., and other good things were fine clumps of Iris bucharica, I. reticulata, Tilipa praestans, and Narcissus Queen of Spain (Bronze Banksian Medal).

A mossy bank was planted with Violets by Mr. B. Pinney, and the Misses Allen Brown showed a very charming collection of Violets of which a few of the best were Princess of Wales, Sulphurea, pale buff, Coeur d'Alsace, rose-pink; Comte de Brazza, double-white, and Mrs. J. J. Astor, double heliotrope (Bronze Banksian Medal).

Messrs. Wm. Cutbush and Son made effective use in a rock garden display of Andromeda polifolia, a pure white flowering shrub, Azalea Hinomanyo, pale rose; A. Fosteriana, double fiery scarlet; Viburnum Carlesii, Erythronium Hendersonii, mauve, and E. Hartwegii, white with chocolate marking at the base (Silver-Gilt Banksian Medal). A very fine collection of alpines in pots was staged by Messrs. R. Tucker and Sons, and included fine specimens of Anemone vernalis, A. pulsatilla Madame van d'Elst, pink; Primula Juliana, P. marginata, and Saxifraga Faldonside (Silver Banksian Medal).

Messrs. J. Cheal and Sons planted a small rock garden with a choice selection of plants including Anemone fulgens, bright scarlet, which contrasted with the deep blue of Pulmonaria angustifolia azurea (Bronze Banksian Medal). The Orpington Nursery Company showed a collection of evergreen shrubs and Conifers (Bronze Banksian Medal).

Messrs. Pulham arranged a small rock garden planted with choice plants, and other exhibitors of hardy flowers were the Misses Hopkins, Messrs. Skelton and Kirby, and Messrs. Bakers, the last named firm showing fine clumps of Primula denticulata and P. Wanda.

Narcissus and Tulip Committee.

Present: Mr. E. A. Bowles (in the Chair), Mrs. Brodie and Messrs. P. R. Barr, W. B. Cranfield, H. V. Warrender, F. H. Chapman, Herbert Smith, Charles H. Curtis, George Monro, J. W. Jones, G. W. Leak, J. D. Pearson, George Churcher, W. Poupart and Robt. W. Ascroft (Secretary).

GROUPS.

A very fine array of forced early single and double-flowering Tulips was exhibited by Messrs. Suttons and Sons The arrangement took the form of a large oval bed gently rising from the centre towards both ends. About four thousand bulbs were employed, due regard in the grouping being given to colour, which ranged from the purest white through shades of cream, yellow, rose, pink and orange to intense scarlet. The plants were not crowded, about six inches being allowed from plant to plant so that each flower could be seen to its fullest advantage. Of the eighty or so varieties represented, white flowers included Princess Mary, Sutton's White Forcing, Pelican, Joost van Vondel, with very large flowers, Pottebakker White, and Diana. Other fine varieties were General de Wet, orange yellow; Violet Giant, a new variety with large flowers borne on short stems: Couleur de Cardinal, deep scarlet; Rising Sun, golden yellow; Sir Thomas Lipton, rich scarlet; Madame Gevers, pale yellow; Peach Blossom, double rose pink; Proserpine Scarlet, a new variety of pleasing rose scarlet colour, and a new sport from Murillo called Crimson and Gold, the rich bronze red petals being pencilled with golden yellow (Gold Medal).

Messrs. J. Carter and Co. showed a very pretty group of forced Daffodils in pots arranged with Berberis foliage. Excellent blooms of King Alfred were shown and other varieties were Lucifer (incomparabilis), white with orange red cup; Seagull (Barri), white perianth, canary yellow cup; Thelma (poeticus), a well-formed flower; White Lady (Leedsi), a very pretty white variety; and Evangeline (Leedsi), pure white perianth, soft yellow cup (Bronze Banksian Medal).

Messrs, J. R. Pearson and Sons, Ltd., had a very comprehensive display of Daffodils, including Van Waveren's Giant (Trumpet), a mammoth flower; Refined Gold (Trumpet), a medium-sized flower of rich golden yellow; Empire (Leedsi), a charming bloom, with white perianth and creamy yellow fringed cup; Firetail (Barri), a striking flower with creamy white perianth and large deep red flat cup; Bernadino (incomparabilis), a good flower with creamy perianth and daintily frilled orange cup; and Homer, a very good poeticus with pure white perianth and deep red eye (Silver-Gilt Banksian Medal).

Forced Hyacinths, Tulips and Daffodils growing in bowls of fibre were shown by Messrs. R. H. BATH, Ltd. King Alfred, Lucifer, Emperor and Homespun (Incomparabilis), with pale yellow flowers, were noted among the Daffodils, while Tulips were represented by Couleur de Cardinal, Panorama, a breeder variety of brick-red colour; Adolphe Van der Heede, red, and Diana, an early-flowering white variety. Crocuses, in named varieties were also shown, Dorothea, lavender-blue, and White Lady being exceptionally fine (Bronze Banksian Medal).

Fruit and Vegetable Committee.

Present.—Messrs. J. Cheal (in the Chair), W. Poupart, P. C. M. Veitch, Geo. F. Tinley, S. B. Dicks, W. Giles, J. Wilson, A. Metcalfe, A. Bullock, G. Reynolds, E. Neal, F. Jordan, H. Markham, E. Beckett, J. G. Woodward, W. H. Divers, E. A. Bunyard and A. N. Rawes.

Messrs. SHEARNS, Tottenham Court Road, London, again displayed an exhibit of imported fruits, and on this occasion were awarded a Silver Hogg Medal. The collection was doubtless the finest exhibit of its character ever staged in the Vincent Square Hall, and it was most interesting to see that such a variety of imported fruits is available at this time of the year when our own gardens have practically none to offer. The collection was made very attractive and the method of staging was in the best exhibition style, each subject being shown to advantage in dainty baskets and on a ground work of black velvet. Probably the finest fruits were the Pears, which included Doyenné du Comice, Beurré Bosc and William's Bon Chrêtien. Some excellent imported Apples were included and many varieties of South African Grapes, both black and white. One of the most interesting of the fruits was the Queen Ann Pocket Melon, which was labelled Melon Pear. Some large Melons of the Valencia variety were exceedingly fine in quality, being equal to English hot-house grown Melons in winter; the excellence of quality was the subject of comment by the Committee. Of the other numerous subjects there were Oranges, Mangos, Grape Fruits, Pecan Nuts, Queensland Pines, Grenadillas and Apple Plums.

Messrs. GEORGE BUNYARD AND CO. showed their usual exhibit of Apples, representing a selection of the best varieties in season. On this occasion they displayed Cobham or Pope's, Calville Rouge, Sturmer Pippin, Claygate Pearmain, King of Tompkin's County, Calville Malingre, Allen's Everlasting, Wagener, Old Royal Russet, Rosemary Russet, and Rhode Island Greening.

Mr. R. F. FELTON showed some exceedingly fine Peaches imported from Australia. They very much resembled the Bellegarde variety, but the flesh has a reddish tinge. The variety is known in Australia as Zerb. The appearance of the fruits was first rate, but the quality, doubtless because of the condition in which they were picked for such a long voyage, was only moderate.

THE ORCHID CLUB.

THE meeting of the Orchid Club held at Manchester on March 7 was the occasion of a capital display of finely grown Orchids, the appearance of Dendrobiums, Lycastes and Cymbidiums in the various groups indicating the changing northern season.

At 3 o'clock Dr. R. N. Hartley gave a communication on "Some Cultural Experiences," in which he detailed and demonstrated by actual specimens, methods of cultivation which he had worked out on scientific principles, and from which it appeared how little serious thought has been given to the question of soil or rooting medium in Orchid culture during the past fifty years.

DIPLOMAS OF MERIT.

Cypripedium J. M. Black, Beckton's var. (*Beryl* × *Eurybiades var. Mirum*). The round, dorsal sepal is slightly convex, white covered with very large crimson spots; the petals are broad and well displayed, coloured yellowish green flushed and spotted with crimson. The pouch is well proportioned.

C. Memoria F. M. Ogilvie var. majesticum, from Dr. F. CRAVEN MOORE. This variety is one of the series raised by G. F. MOORE, Esq., of Bourton-on-the-Water, and has not been previously exhibited. It is a medium-sized flower, unique in shape and in the development of the petals. The dorsal sepal, 2¾ inches transdiameter, rounded in form and flat, is white, with scattered dark crimson spots and a small green luna. The petals are flat and well displayed, expanding in their outer halves to almost circular form; they are 2 inches deep. Their colour is green, the upper halves being overlaid with a deep mahogany crimson flush, the lower halves marked with a few crimson spots. The pouch is green flushed crimson.

C. Olympus var. The Secretary (*Alcibiades* × *Leeanum clinkaberryanum*) from Dr. HARTLEY. The dorsal sepal is 3 inches transdiameter. It is a large, well set, and proportioned flower, suggesting an enlarged and handsome form of C. Leeanum clinkaberryanum, the petals and pouch being more broadly developed and more brightly coloured than in the Leeanum parent.

NEW HYBRIDS.

Cypripedium Norman (*bella* × *selligerum majus*); *C. Joyce* (*hirsutissimum* × *aureum Hyeanum*); *C. Rosalie* (*nitens Leeanum var. Becktoniae* × *aureum var. laekenense*): *C. Aireworth* (*Alcineda* × *Euryades*); all shown by MANSELL AND HATCHER.

GROUPS.

FRED HARDY, Esq., Ashton-on-Mersey (gr. Mr. C. Branch), exhibited a very showy group, the centre piece of which was a fine example of Brasso-Cattleya Pallas; on either side of this were splendidly-grown plants of Lycaste Skinneri, bearing upwards of ten flowers to each leading pseudo-bulb. The body of the group was filled with Odontoglossums and Dendrobiums.

DR. F. CRAVEN MOORE showed a few Cypripediums.

B. J. BECKTON, Esq., Irlams-o-th-Height (gr. Mr. W. A. Stewart), staged a group of Dendrobiums and various botanical Orchids, including the unique Oncidium splendidum holoxanthum, the pretty Angraecum citratum, Coelogyne sparsa, and cut spikes of the handsome Eulophiella Rolfeae.

A. T. CUSSONS, Esq., Prestwich (gr. Mr. F. Cookeson), showed a group of Cymbidiums.

J. H. WALKER, Esq., Eccles (gr. Mr. G. Weaver), exhibited a mixed group of Dendrobiums and late flowering Cypripediums.

SIR WILLIAM THOM, Blackburn (gr. Mr. R. Williams), staged an effective group, conspicuous among which were Dendrobium Hebe magnificum and various Odontoglossum hybrids.

DR. R. N. HARTLEY, Wigan, exhibited well-grown examples of Dendrobium, Cypripedium and Cymbidium to illustrate his paper.

W. MORTON JACKSON, Esq., Wilmslow, staged a few plants, including a very fine example of Masdevallia simula.

MESSRS. MANSELL AND HATCHER, Leeds, exhibited a large group, effectively staged, of Cypripediums, Odontoglossums and Odontiodas.

ENQUIRY.

Will any reader be good enough to let me know the address of the Plucca Pruner Co. (Elliott), late of Regent Street, or the name of any firm that may now be selling the Plucca Pruner. I may add that I have had my letters returned from the Regent Street address. *J. O.*

ANSWERS TO CORRESPONDENTS.

BUDDING APPLES ON THORN: *A. H.* It is not profitable to bud Apples on thorn or quick as the bark is brittle and does not lift well. You would obtain better results by grafting on to this stock, although approved stocks of Paradise and Crab Type are to be recommended.

CRICKETS IN GREENHOUSES: *W. W.* These pests are extremely difficult to eradicate from greenhouses, and require persistent attention, for their habits are nocturnal. They are particularly fond of heat and are found in the greatest numbers near to stokeholes and in the vicinity of hot water pipes, usually hiding in the crevices and holes in the walls during the daytime and emerging as soon as it is dark. Crickets feed principally on vegetable matter but are also fond of meat. The following is a simple and effective method of exterminating them. Place a mixture of fresh beer and treacle in the bottom of a jam-jar to a depth of about one inch, and plunge the jar to the neck on a level with the border or walk; as an alternative a small quantity of sweet oil may be used. Frequently change the treacle-beer and the oil, as neither is attractive to the insects when rancid. In stokeholes and places not frequented by animals or children, you may employ a mixture of bread and white arsenic, using one ounce of the latter to one pound of bread. The poisoned bait should be sprinkled about the haunts of the crickets. It is advisable to adopt all three methods, and if you persist the crickets will in time be exterminated.

DISCOLOURED POTATOS: *H. B.* The discoloration of the flesh of the Potatos is not due to the presence of any organism and is of purely physiological nature. The trouble is popularly known as "bruise" and is to be found among a large number of varieties. Affected tubers may yield a perfectly healthy crop and the disease has never been induced to spread from one tuber to another. It is stated by some growers that a wet, heavy soil favours the trouble.

NAMES OF FRUIT: *J. A. C.* 1, Lord Burghley; 2, Allington Pippin. *Hay.* Schoolmaster.

NAMES OF MANURES: *E. J. C.* 1 and 2, Superphosphate of Lime; 3, Kainit.

Communications Received.—H. E. H.—T. D.—T. B.—R. E. A.—Anxious.—C.—E. H. W.—A. D. C.

GARDENING APPOINTMENTS.

Mr. J. Ison, for the past seven years Gardener to the RT. HON. THE EARL OF VERULAM, at Gorhambury, St. Albans, as Gardener to G. TITUS BARHAM, Esq., at Sudbury Park, Wembley, Middlesex. (Thanks for 2s. for R.G.O.F. Box.—EDS.]

Mr. W. C. Cole, for the past sixteen months Gardener to H. C. BURGES, Esq., Dowsby Hall, Bourne, Lincolnshire, as Gardener to the same gentleman at Hanthorpe Hall, Bourne, Lincolnshire. (Thanks for 2s. for R.G.O.F. Box.—EDS.]

Mr. W. H. Metcalfe, for the past nineteen years Gardener to the late J. D. BOTTERELL, Esq., Colne Park, Earls Colne, Essex, as Gardener to P. C. TENNANT, Esq., Hatfield Priory, Hatfield Peverel, Chelmsford, Essex.

CATALOGUES RECEIVED.

WILLIAM WATT, Cupar.—Farm Seeds.

ALLWOOD, BROS., Wivelsfield Nurseries, Haywards Heath, Sussex.—Carnations.

J. LIONEL RICHARDSON, Prospect Gardens, Waterford, Ireland.—Daffodils.

MAXWELL AND BEALE, Broadstone, Dorset.—Alpines, rock and herbaceous plants, etc.

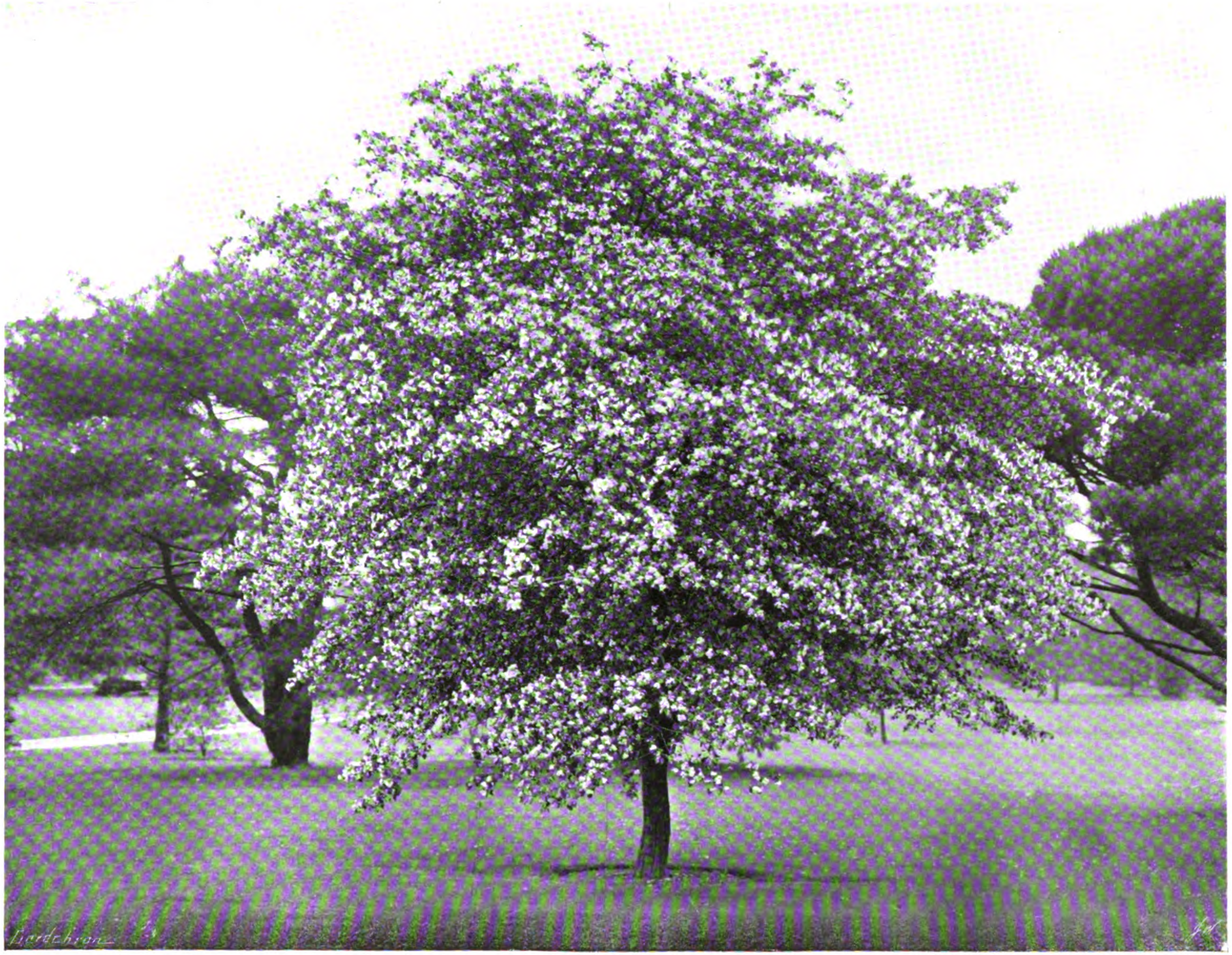
W. OLIVER ALLEN AND SONS, Brick House, Porthleven, Cornwall.—Garden netting and shading.

KERSHAW'S, LTD., Keighley.—Cumberland turf, limestone rockery, crazy paving, etc.

CHARLES AYRES, The Nurseries, Liesbeek Road, Rosebank, Cape.—Bulbs and bulbous plants.

Foreign.

PAUL LECOLIER, La Celle-Saint-Cloud, Seine et Oise, Paris.—Fruit Trees, Trees, Shrubs, Roses.



CRATAEGUS CORDATA: THE WASHINGTON THORN.

THE
Gardeners' Chronicle

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SUPPLEMENTARY ILLUSTRATION.

The Washington Thorn, Crataegus cordata.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 44·1°.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 17. 10 a.m.: Bar, 29·5°; temp. 43° Weather—Cold and bright.

Carbon-Dioxide and Intensive Cultivation.

ANYONE possessing a knowledge of the rudiments of the physiology of plants would be disposed to believe that an increase in the amount of carbon-dioxide in the atmosphere may lead to an increase in crop-production. This gas, which is the carbon-containing raw material used by the green plant in its synthesis of sugars, is present in the atmosphere in extremely small proportions (0.04%) relative to these of the other gases—oxygen and nitrogen—which make up the chief part of the atmosphere. Indeed, it was this consideration which delayed the general acceptance of the discovery made about a century ago that the green plant derives its carbon from atmospheric carbon-dioxide. When, however, the vastness of the atmosphere is considered, it becomes apparent that the supplies of carbon-dioxide which it contains are amply sufficient to provide all the vegetation of the earth with carbon. Yet, although this is so, the question still remains whether plants in Nature are able to obtain from the air about them all the carbon-dioxide they can use so quickly that there is no lag in the production of carbohydrates owing to delay of arrival in the leaves of fresh supplies of carbon-dioxide. In order to investigate this problem, knowledge must be available both of the mode of absorption of carbon-dioxide and of the manufacturing process carried on by the green leaf. Thanks to the labours of plant physiologists, and particularly those of Horace Brown and Blackman in this country, it is known that the leaves with their multitudinous stomata are extremely efficient absorbers of carbon-dioxide; and it is also known that the rate of manufacture of carbohydrate by the green leaf depends on many factors of which temperature, light-intensity, and water supply, together with supply of carbon-dioxide are the chief. Any one of these factors may limit the rate of the photosynthetic production of carbohydrate and, as Dr. Blackman has shown, if any one of these factors be in defect no increase in the others can augment the rate at which the process goes on. For example, if temperature be too low no increase in the light-intensity will speed up the process; or if light-intensity be deficient no increase in the supply of carbon-dioxide will cause the photosynthetic process to go on any faster. Hence, from the point of view of the horticulturist of this country, the problem which is to be resolved is whether under the physical condition of light and heat which prevail here an artificial increase of the carbon-dioxide supply to the plant may produce an increase of crop production. Evidently this problem can best be attacked by studying it in those circumstances in which climatic and weather conditions are most under control. Glasshouse cultivation manifestly affords the best example of such control. Water supply and temperature may be regulated at will and, if need be, sunlight may be supplemented by artificial light. But unless there is to be a grave risk of disappointment it is necessary, before beginning actual attempts to increase crop production by means of augmented supplies of carbon-dioxide, to ascertain the amount and distribution of carbon-dioxide in the air of glasshouses used for intensive cultivation. For instance, it is often claimed that in glasshouses the copious supplies of rich soil and manure liberate—owing to the activities of the micro-organisms which they contain—so much carbon-dioxide as to raise the percentage of that gas to many times that of the natural atmosphere. It has, indeed, been claimed that the concentration of carbon-dioxide in the layers of the air nearest the ground is an important factor in the rapid growth of herbaceous plants. But if the concentration of carbon-dioxide in the air bathing the leaves of herbaceous plants is already high, it becomes doubtful whether raising it yet more will make any difference in the rate of photosynthesis. Nevertheless, it is a salutary rule of experimental science not to argue about what may or may not be, but to seek to learn truth by experiment. The first step in this process must be to ascertain whether there is a higher concentration of carbon-dioxide near the ground level. This investigation has recently been made with great care by Messrs. Owen and Williams at the Experiment Station, Cheshunt. The results of their experiments* show that the opinion generally held that carbon-dioxide is stratified in the air is erroneous. They find that the concentration of carbon-dioxide in a greenhouse is erratic and does not occur in a regular manner. Incidentally it is of interest to note that the authors show that the concentration of this gas varies during the twenty-four hours, rising to a maximum in the early morning and falling to a minimum in early afternoon. It would thus appear that the plant tends to deplete the air of this gas during the period of its photosynthetic activity, and that when this activity ceases, as it does with the closure of the stomata in the early afternoon, the supplies of carbon-dioxide in the neighbourhood of the plant increase again, in part, at least, because of the production of this gas by the respiration by the green plant. The next step in the investigation, which has already been taken by Messrs. Owen and Williams, is to discover how to produce and maintain a higher atmospheric concentration of carbon-dioxide than that which is usually present. The technical difficulties proved serious, but after essaying various methods the authors have contrived one which enables them to maintain the carbon-dioxide contents of the air at any desired concentration—or, at all events, between two known concentrations. In order to do this they produce rapidly large quantities of carbon-dioxide by the action of sulphuric acid on bicarbonate of soda and distribute it by means of an electric fan. These preliminary investigations may seem tedious to those who want to know definitely one way or the other whether carbon-dioxide is to be added to the list of artificial fertilisers. Those, however, who are possessed of this desire, must perforce exercise patience until the results of experiment are known. They may console themselves with the reflection that the results—whatever they prove to be—will be more convincing now that these preliminary enquiries have paved the way for really crucial experiment. For our part, we appreciate and admire the thoroughness with which the authors are attacking a problem which, if solved once for all, may prove the means either of saving useless expense or of bringing about a large increase of crop production, at all events, under glasshouse conditions.

International Spring Flower Show in Holland in 1925.—The General Bulb Growers' Society at Haarlem, which celebrated its Jubilee in 1910 by a two-month's open-air show in the Haarlem Wood, is now organising an exhibition of an international character for 1925. This will be held in a most beautiful and appropriate site, being a part of the Groenendaal Park at Heemstede, near Haarlem, thus affording a unique opportunity for the display of all kinds of bulbous and other plants in natural surroundings. The open-air exhibition will continue during two months, from March 13 to May 21. In addition, there will be six special shows in a building constructed for the purpose. Three of these special shows will be devoted chiefly to Dutch horticulture. The Belgian nurserymen and amateurs under the auspices of the Chambre Syndicale des Horticulteurs Belges, have already decided to organise real "Floralies Gantoises" for the temporary show to be held from April 24 to May 3, and it is expected that horticulturists in other countries will also arrange representative shows of their specialities in flowers and plants. Great Britain and Ireland are expected to send cut blooms of their new Daffodils to the Daffodil Show to be held in April, while such specialities as Carnations, Sweet Peas, Roses, Orchids, Hippeatrums, etc., would make a brilliant display of British flowers and plants from May 15 to May 21, a period probably coinciding with the flowering season of the late Tulips, which will be one of the chief attractions of the general exhibition. The authorities hope there may be a display of British rock gardens either in the permanent show, or in the building, and as there is a growing demand for these gardens in Holland, such a display would demonstrate what British taste and experience have produced in this line. H.R.H. the Prince Consort of the Netherlands is Patron of the exhibition, and three State Ministers and two Governors of Provinces are Presidents of Honour.

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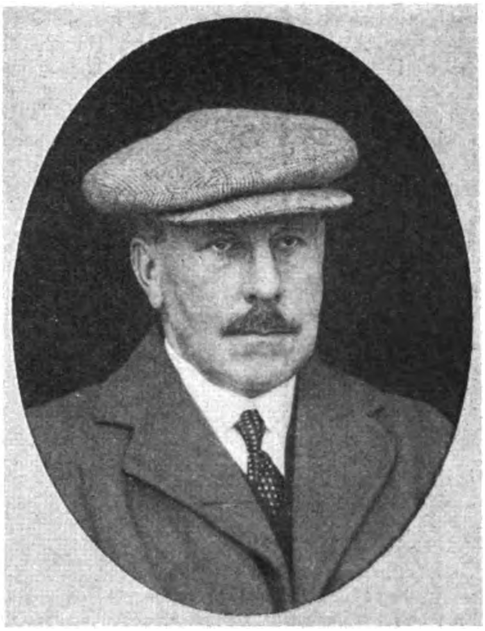
* *The Annals of Applied Biology*, x., 3 and 4. December, 1923.

Forthcoming French Horticultural Exhibitions. –There will be a horticultural exhibition at Antibes from the 27th to 31st March, which will be opened by the President of the Republic. A Chrysanthemum Show will be held on the 25th and 26th October next at Cauderon (Gironde), in the local Town Hall.

Gardens and Architecture.—The second annual exhibition of the Architecture Club was opened by Lord Curzon of Kedleston on the 11th March, at Grosvenor House, Upper Grosvenor Street, London, the residence of the Duke of Westminster. The old house with its spacious lawn at the back and its amply proportioned rooms made an excellent setting for the exhibits, most of which consisted of photographs, accompanied by plans of recent buildings of architectural interest. There were also a number of models of ancient cathedrals, and some of modern houses, and, of most interest to horticulturists, numerous photographs of modern gardens, and a display of garden statues and other ornaments. Most of the gardens and garden statuary were grouped in one room for the convenience of visitors. The new wing and terraces lately added to Burford Priory were illustrated, as also was the pool at the north end of the water garden, designed by Sir Edwin Lutyens, at Hestercombe, Somerset, beautiful in conception and realisation. The same architect's Lily pond at Papillion Hall, though quite different in treatment, was equally pleasing, the original surroundings of the little water garden being particularly propitious. The gardens at Netherswell Manor, Gloucester, are a happy combination of nature and art, and the architect, Mr. E. Guy Dawber, is to be congratulated on having caught so well the spirit of the place, the local stone being used with the happiest results for walls, the margins of the pool, and the pillars of the gates. Eyford Park, Gloucester, is another example of the advantages of stone, a rough stone wall, on which many dry-wall plants are flourishing, being used as the boundary of a lawn. The garden statuary is of the usual kind; it is mostly the work of Phoebe Stabler, and is pleasing in its genre. Two garden flower pots in Chinese blue glaze provided a splash of bright colour, but would have to be placed with some care in garden surroundings. A view of the gardeners' cottages at Barrington Court, Somerset, showed a range of low, thatched-roof dwellings of the most comfortable and picturesque kind, with lawns front and back. Among the models was one of the bird pond designed by Jacob Epstein for Hyde Park, London; it is a memorial to the late W. H. Hudson.

International Gladiolus Exhibition at Ontario. —The Chamber of Commerce of the City of Guelph, Ontario, is making arrangements for the holding of an international Gladiolus exhibition on August 20 and 21 next. The Ontario Government is providing trial plots for the planting of corms sent for the exhibition. Every possible care will be taken of the corms, which, will be cultivated by competent horticulturists attached to the Ontario Agricultural College. British growers and raisers of Gladioli who desire to exhibit at Guelph are invited to send not more than twenty-five corms of any one variety, in time to reach Guelph not later than April 15. The consignments should be addressed to Prof. A. H. Tomlinson, Secretary-Treasurer, Canadian Gladiolus Society, Ontario Agricultural College, Guelph, Ontario, Canada.

Mr. George Shawyer.—Among the many highly successful British nurseries devoted to the production of flowers for Covent Garden and other markets, none exceeds in extent the establishment of Messrs. Lowe and Shawyer, at Uxbridge. In our issue of February 24, 1923, we gave a portrait of Mr. Joseph Lowe, the veteran horticulturist who founded this amazing business just sixty years ago, and it is now our very great pleasure to publish the portrait of his partner, Mr. George Shawyer, who joined him in 1897 and is now the Managing Director, since Mr. Lowe is enjoying that release from business cares to which his advanced age and years of hard work justly entitle him. Mr. Lowe, however, still takes a great interest in the affairs of the company and is Chairman of the Board of Directors. Mr. Shawyer did not commence his business life as a horticulturist, although he spent several years with his father and brothers in what is now the business of Messrs. Shawyer and Sons at Cranford, Middlesex. At Cranford all the crops then cultivated were grown out of doors, indeed Mr. Shawyer's knowledge of crops under glass was so small that when he went to Uxbridge he actually did not know Cucumbers would not withstand frost. He brought to the Uxbridge business a genius for organisation, a wonderful power of concentrating upon every problem arising, and a mental capacity for detail comparable only to the inquisitiveness of a high-power microscope. Mr. Shawyer believes that an establishment such as the one he manages can only be properly conducted when the number of subjects grown is severely limited and this viewis endorsed by his co-directors. That this method is successful is shown by the splendid quality of the material produced; "high quality in everything" is Mr. Shawyer's business motto. It is Mr. Shawyer's regret that the claims of a great business allow him little time to spare for other matters. Nevertheless he finds time to take a full share in the activities of the British Florists' Federation, of which he was a founder, and also in the work of the Chamber of Horticulture, which, he believes, has great possibilities of usefulness to those engaged in commercial horticulture.


MR. GEORGE SHAWYER.

The Water Supply at Kew.—*Kew Bulletin*, No. 1, 1924, records some interesting particulars of the work in Kew Gardens during 1923 and states that the most important has been the provision of tanks for collecting and storing rain water. It will be remembered that investigations during 1921 proved that the river water used in watering indoor plants contained a considerable amount of saline matter, and the new tanks have been made to provide a supply of rain water for use in the houses. While Kew is notorious for frequent fogs owing to its vicinity to the river, its low lying situation and proximity to large towns, the difficulty in growing many fairly easy plants at Kew, which in the past was largely attributed to fogs, is doubtless in part due to the use of brackish water from the Thames. The *Bulletin* states that a distinct improvement in the health of many of the indoor collections of plants is already manifest, and doubtless within a season or two the ill-effects will have passed.

The Palm Garden of Frankfurt.—In our issue of January 19 (p. 30) we mentioned the straitened circumstances of the famous Palm Garden at Frankfurt, and the fear then generally felt that nothing could save it from extinction. We now learn from our contemporary, *Die Gartenwelt*, that in consequence of the strenuous and self-sacrificing efforts made by the inhabitants of the city its finances have been placed once more on a firm basis, and the future of the garden, unless some unforeseen circumstance occurs, is assured. The hothouses are once more in working order, lost plants are being gradually replaced, and it is hoped to recommence the enriching of the collection as in pre-war times. A steady income is always available from the entrance fee of one mark which is charged to the public. In consequence of the death of the late superintendent, Herr August Siebert, a new superintendent, Herr Otto Krauss, has been appointed. He takes over his duties at a very difficult time, but he has shown an interest in the affairs of the garden for thirty years past.

British Daffodil flowers for Holland.—The Importation of Daffodil bulbs and Daffodil flowers from Holland is a matter of annual occurrence, but the export of Daffodil blooms to Holland is, so far as we are aware, unique; therefore it is of special interest to observe that towards the end of last week Mr. David Ingamells, whose portrait we gave in our previous issue, despatched thirty cases of Daffodil blooms to Holland and these were consigned to the flower market at Aalsmeer above all places.

Royal Gardeners' Orphan Fund. –The Annual Festival dinner of the Royal Gardeners' Orphan Fund will be held at the Hotel Victoria, Northumberland Avenue, W.C., on Wednesday, May 7. The Treasurer, Mr. J. Edward N. Sherwood, J.P., will preside. Donations in aid of this excellent gardening charity may be sent either to Mr. Sherwood, 152, Houndsditch, E.C., or the Secretary, 19, Bedford Chambers, Covent Garden, W.C. 2.

The Paeony in America.—It is curious that the Paeony, like the Dahlia, is becoming such a very popular flower in the United States of America. We are reminded of the fact by the interest that a well-known lady amateur in that country is taking in the flower, and of her active propaganda to promote its cultivation in Europe. She has offered prizes to be competed for at the Exhibition of the National Horticultural Society of France, and has also provided a cup for the best display of Paeonies in the years 1924, 1925 and 1926 at meetings of our own Royal Horticultural Society. Mrs. Harding is the author of a very fine book on her favourite flower, entitled, *The Book of the Paeony*, and also of another smaller work called, *Paeonies in the Little Garden*. The latest issue of the American Paeony Society's *Bulletin* (No. 20) is just to hand. It is an important pamphlet of seventy-six pages, containing much literary matter of interest to its members. The editor is Professor A.

P. Saunders, of Clinton, N.Y., and what surprises us most is the very lengthy list of members of the Society. This list occupies more than fifteen pages of the *Bulletin.* Upwards of 600 members are in active co-operation with the Society's work. The Secretary is Mr. W. F. Christman, 200 W. 58th Street, Minneapolis, Minn., U.S.A.

Actinidia arguta as a Hedge Plant.—*Horticulture,* the publication issued by the Massachusetts Horticultural Society, for February 15, has an illustration of a hedge of Actinidia arguta, a use to which this climbing plant is not, so far as we are aware, put to in this country. Judging from the picture the plant makes a most effective hedge and with its heavy, dense foliage forms a complete screen. Used in this way it needs to be trained on a strong support and a hedge of this climbing plant, when the deliciously scented flowers are present in summer, must be a fine feature in any garden. Actinidia arguta is an exceptionally vigorous climber, and according to Mr. Bean in *Trees and Shrubs Hardy in the British Isles,* it is also one of the hardiest of the Actinidias and flowers freely out of doors at Kew.

Appointments for the Ensuing Week.—Monday, March 24: Reading and District Gardeners' Mutual Improvement Association's lecture. Tuesday, March 25: Royal Horticultural Society's Committees meet (2 days); Newcastle and District Horticultural Society's lecture. Wednesday, March 26: Sheffield Chrysanthemum Society's meeting; Wimbledon Gardeners' Mutual Improvement Society's meeting. Thursday, March 27: British Carnation Society's Show at the R.H.S. Hall, Westminster; Royal Botanic Society's meeting. Friday, March 28: Manchester and North of England Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Presentation to Mr. M'Nab.*—In last week's paper we gave an account of the prizes awarded to competitors at the general meeting of the Caledonian Horticultural Society, held on the 1st inst.; but we have still to record the presentation, on that occasion, of a salver and other pieces of plate to Mr. M'Nab, the former superintendent of the Experimental Garden at Edinburgh. The Chairman, Mr. Crawfurd, of Cartsburn, observed that the Society was deeply indebted to Mr. M'Nab for the improvements in the Garden, which had been chiefly accomplished by his taste and energy; to him they owed the noble hall in which they were now assembled, the two Camellia houses, which had given so much satisfaction to many, and the "Winter Garden" structure, which was exciting universal admiration; for this last Mr. M'Nab had not only furnished plans, but had by his activity and perseverance collected the requisite funds. The Council were so sensible of Mr. M'Nab's merits that they had unanimously resolved to recommend the presenting him with some pieces of plate, as a marked token of the Society's approbation; and he had now the pleasure of putting into the hands of Mr. M'Nab personally the principal piece—a massive salver, ornamented with perspective views of the Hall and the Winter Garden, and containing the following inscription:—"Presented (along with other articles of plate to the value of £50) by the Caledonian Horticultural Society to Mr. James M'Nab, Superintendent of the Royal Botanic Garden, as a mark of their sense of his eminent services to the Society, while Superintendent of their Garden, from 1836 to 1848. January 20, 1849." Mr. M'Nab, in a brief but feeling manner, expressed his gratitude, stating that, in anything he had done, he considered himself as having merely done what was his duty; thanking the members for the uniform kindness he had experienced, and assuring them that he would always feel anxious for the prosperity of the institution. *Gard. Chron., March 24, 1849.*

NOTICES OF BOOKS.

Town Gardening.

The London Gardens Guild has published a very attractive little handbook* on town gardening. The object of the Guild is to encourage gardening in London and especially in the densely populated districts. The Guild has thirty-six branches and affiliated societies covering the county of London, and last year it organised many competitions in twenty-two districts. The first article in the Handbook is entitled "Flower Gardening in Towns," by R. Sudell, and gives some valuable hints on the planning and maintaining of small town gardens. Mr. Sudell gives directions for the growing of biennials, perennials, spring bulbs and such summer flowers as Dahlias, Gladioli, Montbretias, Irises, Carnations, Geraniums, Fuchsias, Calceolarias, Roses, etc., in town gardens, together with a tabulated list of flowers, with their botanical and common names, their heights and colours, suitable for town gardens, including annuals, biennials and perennials. Equally valuable are the lists of plants suitable for sunny positions, plants for half shady situations and plants for growing in dense shade. The same author has a chapter on window gardening.

Another useful article is entitled "Lawns, Hedges, and Trees," by W. H. Jenkins, who gives a list of trees and shrubs, climbing plants and alpines suitable for town gardens. Under the heading of "Some Special Difficulties of the Town Gardener," useful information is given on a variety of topics of interest to gardeners generally. For instance, in solving the problem of cats entering gardens the writer recommends placing ammonia in a bottle, which should be sunk in the ground in places where the cats are most troublesome, leaving the neck of the bottle just level with the surface. Mr. Jenkins also recommends soot as a deterrent to cats, and another method of making the garden objectionable to these animals is to sprinkle the place liberally with cayenne pepper. For combating slugs it is recommended to spray the plants with a liquid made by boiling half a pound of quassia chips and about two tablespoonsful of soft soap in one gallon of water for ten to fifteen minutes. When strained the liquid may be diluted to about ten times of its amount with water.

The handbook also gives a list of vegetables suitable for small town gardens with the dates of sowing, the distances and depths at which to plant, and the distances apart for the rows. The concluding matter is a monthly calendar of garden work compiled by Mr. R. Sudell.

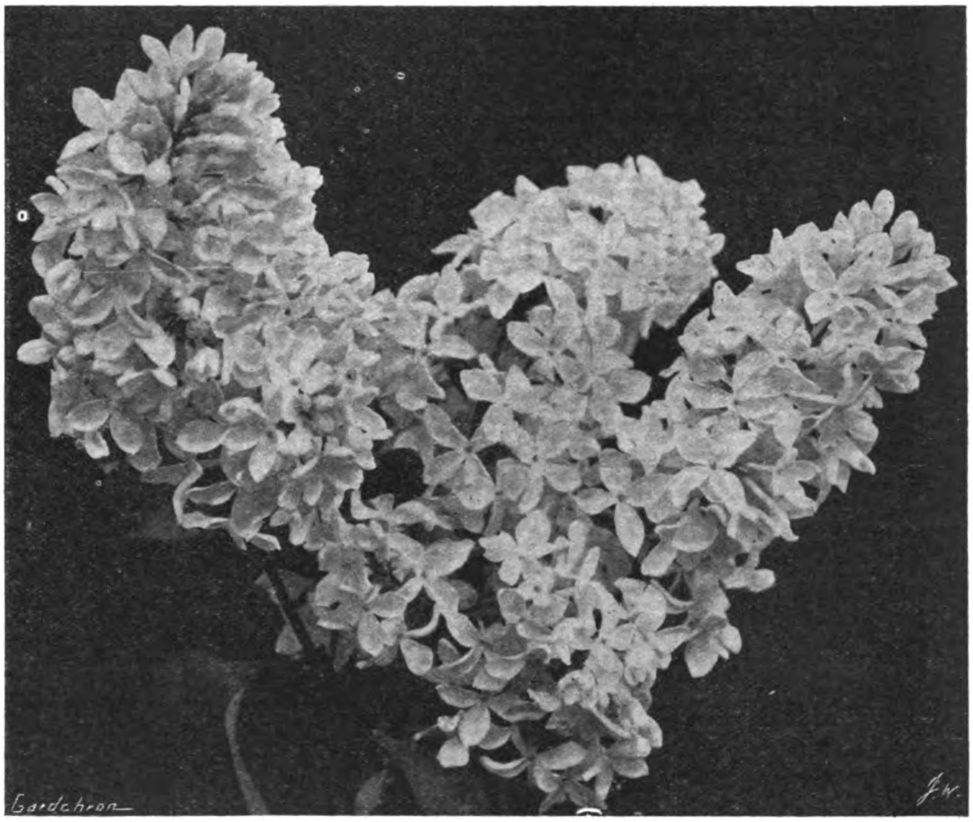


FIG. 63.—SYRINGA JAN VAN TOL., R.H.S.. AWARD OF MERIT. MARCH 11 (SEE P. 153).

The Cultivation of Black Currants.

A pamphlet, entitled *The Cultivation of Black Currants*, written by Mr. H. Goude, has recently been issued by the Norfolk Agricultural Committee. The author treats in detail with the preparation of the soil, manures and planting, and particularly emphasises the need of raising new stock from healthy bushes. The troubles of "reversion" and "big bud" receive attention and the symptoms of infection are briefly outlined. The method of rearing clean stock from soft cuttings ensures a clean start and green cuttings will strike freely if made in early June. The varieties recommended for growing in Norfolk are Boskoop Giant, French Black, Victoria, Baldwin and September Black; the varieties Westwick, Benton's and Seabrook's Black are said to be identical with French Black. In all plantations it is advised to grow early, mid-season and late varieties, as the picking of the fruits is thereby facilitated and very early and very late berries often make the highest prices on the market. There are many inferior strains, particularly of Victoria, in distribution and growers are warned in buying stock to obtain only the very best strains.

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* *Town Gardening: Hints for Gardening throughout the Year.* London Gardens Guild. Price 3d.

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Epidendrum vitellinum.—This showy Orchid is developing new roots, and plants that require repotting should be given attention. These plants dislike frequent root-disturbance, therefore any that are in pots sufficiently large to accommodate their new pseudobulbs, should be left for another season, and if the old compost has become exhausted it should be picked from the surface by the aid of a pointed stick and fresh material substituted.

Epidendrums of the E. radicans type.—These Orchids are rooting freely and may be dealt with at this period. These plants will, if neglected, grow to a great length, and become unsightly, but they may be kept dwarf and compact by proper attention. Straggling specimens should be cut through the pseudo-bulbs to the desired length below some of the aërial roots that are pushing forth, and these portions may be potted up singly, or several may be placed together. The lower parts of the pseudobulbs from which the tops have been removed may be left in the pots. They will soon start growing afresh, and when the roots are active should be re-potted. The plants require an intermediate temperature and a plentiful supply of water at the roots during their growing season.

Epiphronitis Veitchii.—This pretty bigeneric hybrid, raised from Sophronitis grandiflora crossed with Epidendrum radicans, is very similar in habit to its second named parent, excepting that the influence of the Sophronitis has somewhat dwarfed its growth. Like E. radicans the hybrid is continually developing roots from the stem, and should be dealt with as recommended for that species. Five or six shoots should be potted together. The plants grow and flower well in pans suspended from the roof-rafters of an intermediate house.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Seed Sowing.—Although a number of flowering plants may be sown during February in favoured localities and under good weather conditions, March is the chief month for the sowing of both annuals and perennials. Need for economy in gardens has resulted in the extended use of annuals, and, while the precision of style and colouring which results from plants raised from cuttings is admitted, equally good general effects may be ensured much more simply and cheaply by raising plants from seed. There is much to be said on behalf of annuals, for their variety of habit, elegance of form and delicate blending of colour are not surpassed by any other section of plants. It must not be thought, however, that because of the comparatively small amount of skill needed to grow them that little care need be bestowed on them. Good cultivation is the keynote of success with these plants as with all others and it is a matter of considerable importance to note that where this is practised a large proportion of them remain in beauty until the extreme end of the season.

Pampas Grass.—Old clumps should be cleaned of the dead foliage and rubbish to enable the new growths to develop freely. Any further plantings contemplated should be made forthwith, and worn out clumps divided and replanted. This beautiful grass is very showy during the autumn, and bold clumps of it well placed among other foliage plants make a striking feature in autumn colour schemes.

Mignonette.—Although Mignonette is perfectly hardy it is a good plan to sow seeds of this desirable plant in small pots under glass, and to plant out the seedlings as soon as they are large enough to handle. By this means germination is kept under control, and the flowering positions ensured.

Violas.—Cuttings of Violas that were rooted last autumn and have been wintered in cold frames may now be transferred to their permanent positions. Used as an edging or in other positions they are very effective, and, if seed-pods are not allowed to form, they remain in beauty during the whole season.

Border Carnations.—In favoured districts where plantations of border Carnations were made in the autumn the plants should be examined as soon as the ground is frost free, and the soil made firm around them. Plants wintered in cold frames may be planted out so soon as soil conditions are favourable.

PLANTS UNDER GLASS.

By F. J. Clark, Gardener to Lt.-Col. Sir George Holford, Westonbirt, Tetbury, Gloucestershire.

Carnations.—Cuttings of the perpetual-flowering varieties which were rooted in January and afterwards potted into thumb pots, as advised in a former calendar, should now be ready for transference to three-inch pots. Whilst it is essential that the young plants should not become pot-bound, it is also advisable to guard against overpotting. Therefore, the first potting from the propagating pans should be into thumb pots, the next shift into three-inch, later into four-and-a-half or five-inch pots, from which the plants may be finally transferred to pots of six inches and seven inches diameter, according to the vigour of the varieties. Good mellow, fibrous, yellow-brown loam is the best soil for Carnations, and if it has been stacked for twelve months, so much the better. Lime should be included and may be provided in the form of wood ash, old mortar rubble, or crushed oyster shells. For the second potting a compost of four-parts loam, one-part manure from an old hotbed with the addition of sharp, coarse sand, wood ash and a little finely crushed oyster shells or old mortar rubble will be suitable. The whole of these materials should be rubbed through a quarter-inch or a three-eighths-inch sieve. One crock in the bottom of the receptacle will suffice at this potting, over which should be placed a little of the fibrous portions of the loam obtained from the riddling. An excessively moist or pasty soil should never be used; it should be in such condition that it will pass through the sieve without clogging. The soil should also be warmed to the temperature of the house in which the plants are growing. Pot moderately firmly by pressure with the end only of the fingers and thumb, leaving the surface soil loose to allow for the easy passage of water and for aëration of the roots. This last mentioned detail in potting I consider most important particularly in the case of all soft-wooded plants. Guard, also, against potting too deeply; the old ball should be just covered with the new soil. Deep potting is often the cause of stem rot. After potting, the plants should be placed on an ash or gravel bottom in a light house having a temperature of about 50° to 55° at this stage. Water, sufficient to penetrate the whole of the soil in the pots, should be applied through a fine rosed can, and until their roots have become established in the new soil, the young plants should be shaded from sunlight, after which shading should only be necessary during strong sunshine.

Stopping.—The first stopping of Carnations, the object of which is the production of sturdy, bushy plants, should be performed only when free root action is taking place, therefore it should not be practised at the actual time of potting, but rather some two or three weeks before or after the shift, provided the plants have made sufficient growth—that is—where five or six pairs of fully-developed leaves can be left on the plant after the tip of the growth has been pinched out. The part removed should possess at least one pair of developed leaves. Neither should the stopping be deferred until the growths have become hard, or an uneven and disappointing break will result.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Strawberries.—The mulching of short manure which was placed on the beds in the autumn as a winter dressing may now be raked off and used in other parts of the garden. After the removal of the manure, cut off with a sharp knife all dead leaves to within two inches or three inches of the crowns. This is better than pulling them off indiscriminately, as the crowns in that case would be liable to injury by late frosts, and the plants would suffer in consequence. Give the rows a dusting of old soot and wood ash, and then lightly fork the bed over, but not deeply. Warm April rains and warmth from the sunshine will then penetrate to the roots, and if the Dutch hoe is used occasionally, the plants will be greatly benefited. Beds of young plants may be left a little longer, say, perhaps a fortnight before they receive this attention; the plants will not then receive any check from the removal of the protective covering.

Peaches and Nectarines.—Hasten the completion of the work of tying and nailing these trees, as it is surprising how soon they are in bloom after a few warm days. They should be covered at night with the same material as recommended for protecting Apricots. If blinds are used, boards should be placed along the borders for the operator to walk on.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Vines in Flower.—When the flowering stage is reached a little air should be admitted by the top ventilators both day and night, whenever the weather is favourable for a constant circulation of warm air is essential to ensure the berries setting freely. The temperature at this stage of growth may be raised slightly to 65° by night in houses containing Black Hamburgh, and if Muscat varieties are included in the same house the temperature should be 67°, but much will depend on outside conditions, for too much warmth from the water pipes would cause a dry atmosphere which is detrimental to free setting of the fruit. It is also advisable to assist fertilisation by artificial pollination, by the use of a rabbit's tail tied on a cane, by drawing the hand lightly over the bunch, or tapping the vine smartly several times during the day to help to distribute the pollen. Muscat of Alexandria and other shy setting varieties may be greatly assisted in this direction by charging the rabbit's tail with pollen obtained from Black Hamburgh.

Late Vineries.—The buds of the late vines are swelling and the house should be closed forthwith, for after this date no advantage is obtained by retarding the growth. Examine the borders and if doubt exists with regard to the borders being dry they should be soaked thoroughly with tepid water.

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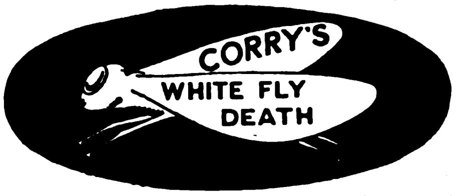

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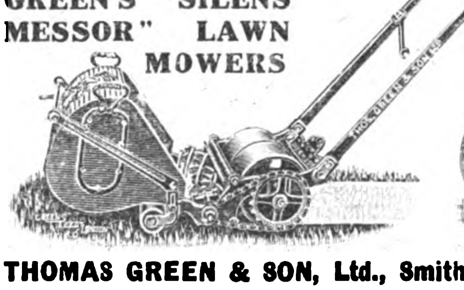
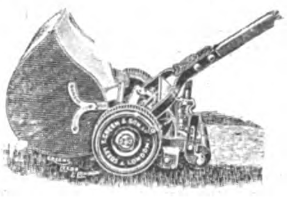
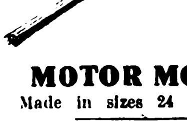
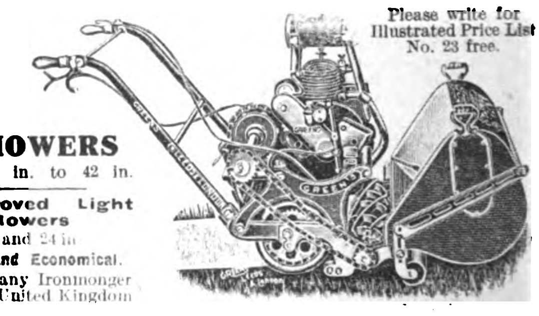

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Should the weather prove mild there will be no occasion to use fire heat for the present. On all fine days syringe the vines with tepid soft water and damp the walls and floors. This will greatly assist the vines to break into growth evenly. Should the weather prove cold judgment must be used in charging the house with atmospheric moisture.

THE KITCHEN GARDEN.

By **Walter Y. Staward**, Gardener to **Mrs. John Feeney**, The Moat, Berkswell, Warwickshire.

Turnips.—A sowing of Turnip may be made on a south border; a few rows should be sown every week to ensure a continuous supply of roots.

Celeriac.—Turnip-rooted Celery seed should be sown now in pans and germinated in heat, placing a sheet of glass over the pan until the seed has germinated, when the seed-pan should be placed on a shelf near the roof-glass.

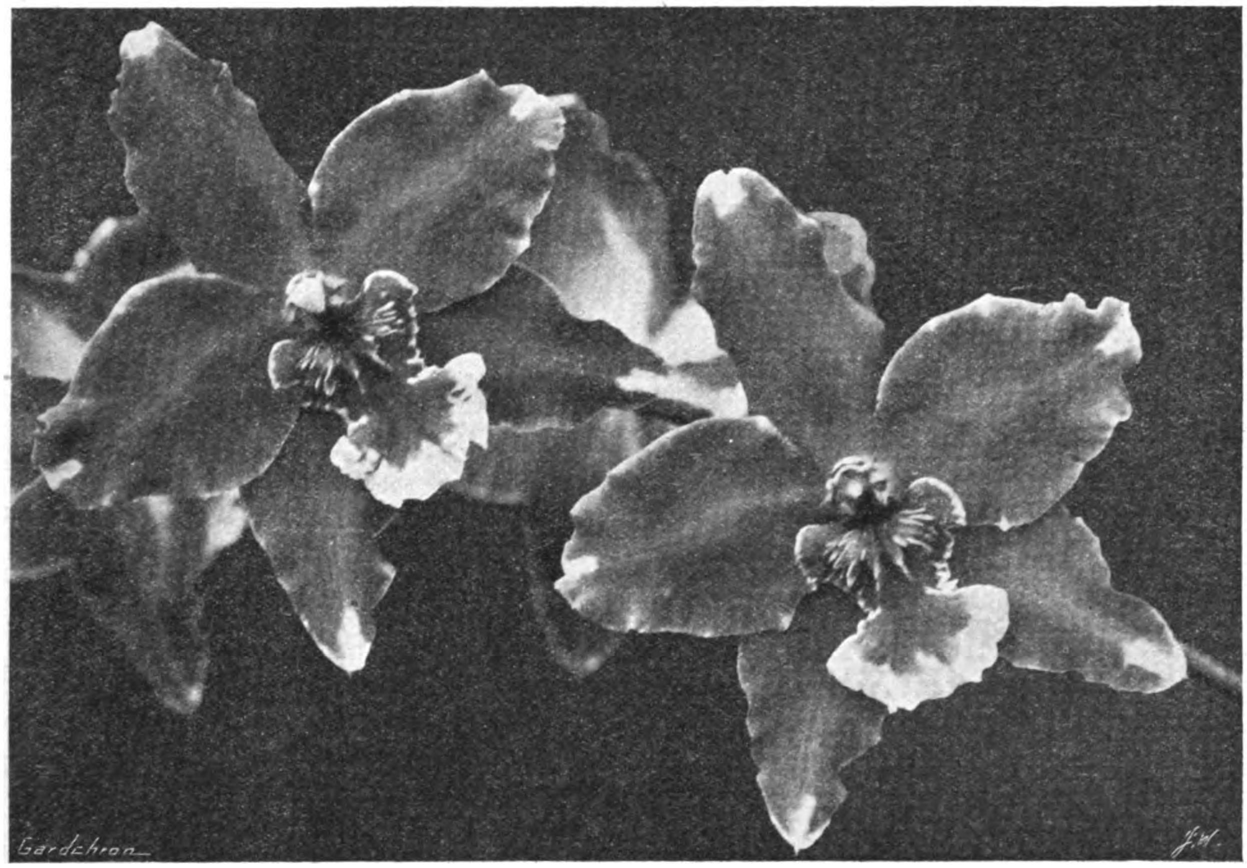

FIG. 64.—ODONTIODA THE TORCH: R.H.S. AWARD OF MERIT, MARCH 11 (SEE P. 152).

Cardoon.—Sow now in 3-inch pots and germinate in a temperature of 55° to 60°. When the seedlings are about four inches high place them in a frame where they will in time get plenty of air to harden them off for the trenches.

Mushrooms.—To ensure a continual supply of Mushrooms material for a fresh bed should be collected, placing it in a dry shed and turning it over every other day until sufficient has accumulated to make another bed about 12 feet to 15 feet long, 4 feet wide, and 18 inches deep. Sufficient manure should be collected to make a new bed every week for successional crops. It is very important that the manure should be as fresh as possible.

Capsicums.—A sowing of Capsicums may be made now, and as soon as the seedlings are large enough they should be transferred singly to 3-inch pots. The plants should be well syringed overhead to keep down attacks of thrip and red spider.

INDOOR PLANTS.

CORREA GLABRA.

Of the various forms, varieties and species of Correa which have been introduced to this country I find no record of C. glabra in gardening books. I recently had a shoot to name from the Scilly Islands, where, with others, it is grown in the open air. Two or three decades ago the Correas were much cultivated in greenhouses and classed amongst the choicest of subjects. They had to be kept very dry and cool overhead, on account of their dense clothing of stellate and furry hairs, which are almost absent in C. glabra. The leaves of this are very small compared with C. speciosa, oblong-lanceolate, obtuse, tapered to the base and quite smooth. The back of the corolla, the cup-shaped calyx, and the younger twigs alone show a thin covering of the more-or-less starry hairs. In the Kew Herbarium this is one of the species named by Dr. Lindley, who also named another small-leaved form C. leucoclada. A series of these small-leaved Correas, differing in the amount of hairiness, have been classed together, under the name of C. speciosa leucoclada, as they seem to merge into one another. Only one of these has found its way into garden lists, under the names of C. pulchella, and C. speciosa pulchella. The flowers of C. glabra, judging from the half-dried specimen, are rosy-pink throughout their length, quite devoid of green.

SKIMMIA FORTUNEI.

There is a slow-growing form of Skimmia with spreading branches, hermaphrodite flowers and obovoid red berries, that rarely fails to set its berries, while the berries and flower buds that will open in spring or early summer are present on the plants now. This is Skimmia Fortunei, which nobody seems to recognise, though it was properly named and described in *The Gardeners' Chronicle* by the late Dr. Masters many years ago. It was originally described by Dr. Lindley as S. japonica in 1853, when introduced, and Fortune also regarded it as this species. The S. japonica of Thunberg was introduced to this country in 1864, yet no one seemed to recognise the difference between the two until Dr. Masters defined it. S. japonica has much larger, oblate berries, broader leaves, and when raised from seeds has given rise to a multiplicity of forms, which have been given names in gardens. Their flowers are very variable, some being merely male as in S. fragrantissima. With its certainty in the production of berries it is surprising that so few think of growing S. Fortunei for the embellishment of cool or unheated conservatories and greenhouses *J. F.*

COLEUS.

The warm greenhouse hybrid Coleuses have foliage of varied and rich colouring. They are raised easily from seed germinated in a temperature of 55° to 60°. The plants are quick growing subjects, and a certain amount of stopping is necessary to ensure a bushy habit. They will make good specimens by the time they are well rooted in 5-in. pots.

The older school of gardeners grew big specimens in 8-in. or 9-in. pots as large pyramids, often for the purpose of competition in local shows. This they achieved by the early training of the leading shoots on a circular wire frame, or sometimes Hazel twigs manipulated to form a frame, the final size of the plant required determining the circumference of the framework.

These trained plants should be grown in a warmer temperature than bush specimens to favour as free a growth as possible from every shoot.

Not the least important point remains to be stated. Do not despise the smallest and weakest plants in the pan of seedlings, as these nearly always develop the richest coloured leafage and finest markings on the foliage. Varieties that are considered of exceptional merit should be perpetuated by cuttings, which root readily in sandy soil in heat. *C. Turner. Ampthill Park.*

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SNOWDROPS.

THE heading of these notes is so commonplace that it will doubtless flash across the minds of most of your readers, "What on earth is there to say about Snowdrops which has not already been said?" Well! if there is not much to be said about Galanthus nivalis, there is a good deal to be written about the number of its relatives, most of which I do not like, in truth some of the bloated, over-fed-looking species I positively hate. But it is in regard to planting and propagation I wish to make a few observations.

To get the proper conception of the beauty of Snowdrops they must be growing in enormous numbers, and that, too, in a suitable place. On flat ground where Crocuses and Daffodils might look comparatively happy, the Snowdrop seems but ill at ease, whilst on rocky banks in a glen, under Oak trees, with a running brook and a carpet of brown leaves, in their millions they are charming indeed. Perchance but few have this ideal setting; I have not, but those who have should set about cultivating the Snowdrop without delay, for, like tree planting, the cultivation of this bulb is unfortunately a young man's job if the ideal results of the planter's labour are to be seen.

I planted some 20,000 bulbs twenty years ago, and though it was a tedious business indeed, when I came back next spring to see the result of my labours, fondly anticipating that the banks would be more or less white, to my great disappointment I could scarcely count a single bloom, and really came to the conclusion that the Snowdrop did not thrive here, and thus it continued for four or five years, then a scant sprinkling appeared. About ten years after planting, however, I began to divide out the little clumps and have continued doing so every season since. Here we set aside a day every year, sometime in April, which we call Snowdrop Day, in which all the help that can be secured is entirely devoted to lifting, dividing and replanting.

I have never seen either Snowdrop, Daffodil or Crocus seeds offered for sale, and wonder if any of your readers have experimented with it, or could tell me where seed of the first can be obtained. The last named bulb is rendered useless to me by a plague of rabbits and mice, which vermin carefully attend to them, both beneath and above ground, whilst of Daffodils I have more than sufficient, and except in the evening light, their colour seems to me rather crude and gets tiresome.

One would think it quite a simple thing to plant naturally, but do as one will, the bulbs somehow persist in getting into quaint patches, sometimes a sort of regular, informal clump, this effect of course being only apparent when the bulbs are in bloom. Fortunately they do not in way resent removal immediately after flowering, and it is then easy to discern where the mistakes in planting have been made, and rectify them. I notice that in the first year or two after removal the bulbs are later in flowering than when established; thus in a drift some are expanded much earlier than others, which gives rather a mixed effect, but this soon rights itself.

As already stated, to be really effective, hundreds of thousands, nay, millions are required. I always feel that Snowdrops give the same pleasing air of antiquity about a property which old Yew trees and hedges give, whilst on the contrary, the gaudy Daffodils and Crocuses (always provided the rabbits and mice do not attend to them), come up abundantly in a comparatively short time, but somehow give rather a commonplace kind of effect.

I do not know exactly how it is, but from my observations the Snowdrops only increase by off-sets, never by seed. If they did so by the latter it would be child's play to establish Snowdrops in quantity. Possibly blooming as it does so early in the season, insects are lacking to fertilise the blooms, though the honey bee does frequent them, when nothing better is to be had, but only in a half-hearted kind of way, whilst the first straggling blooms of Erica carnea are alive with them, so much so, that I often wonder what each returning bee can possibly get.

Snowdrops planted where the grass is mown never seem to look comfortable nor do they thrive to the same extent as when planted in woodland. This may possibly be accounted for to a certain extent by the grass being cut before the leaves of the bulbs have ripened off, but it is not altogether so, as I have considerable patches planted in a field closely grazed all the summer by cattle, and I may add exposed to full sunshine, and these bulbs have never increased but rather dwindle and sulk, whilst in the same field a few yards distant, but over a fence, where the grass is not eaten by cattle, but left to extend its full length and decay, the Snowdrops grow luxuriantly. It seems to me that the bulbs when planted deeply, say six or seven inches, bloom earlier than those nearer the surface. I intend to plant a row next month, in little clumps, varying in depth from one inch to twelve inches, and see with what results. Again, there are clumps of Snowdrops in my father's garden which to my certain knowledge have neither been moved nor manured for the last forty-five years, and I think for very much longer, yet they bloom away as gaily as ever, the centre bulbs being as floriferous as the side ones, nor have the clumps increased in size very much. Now, had these been annually separated and the separated again separated, and so on, I hazard the opinion there would have been, by this time, a tolerably good acre of them. I mention this in order to show how very long they will take to whiten a woodland, unless the plants are increased by artificial aid; at least that is my experience.

I have always understood that the Snowdrop was not indigenous to this country, and I do not know the history of its first arrival. It would be interesting to know when some of these Snowdrop-clad woods were first started. I fancy many hundreds of years ago in some cases. I can call to memory two in Renfrewshire, though doubtless there are more, namely Ardgowan and Finlayson. The Snowdrop seems somehow to be immune from disease, and distasteful to all insects and animals, with possibly one exception, and that is the human race. So long, however, as the latter content themselves with a few blooms but little can be said; when, however, they arrive with spades and trowels and proceed to fill up the back place of a car, where all the greasy things are kept, it is certainly annoying. Remonstration only evokes the reply: "I thought they were growing wild," and when informed there is nothing growing wild except the proprietor, they seem quite astonished.

I wrote these notes some weeks ago, in truth when the first Snowdrop appeared, but scarce thought them interesting enough to send along; however, on seeing Sir Herbert Maxwell's notes in the *Gard. Chron.* of March 1 (p. 119), they appear in a somewhat new light, especially in view of the seed question. I wonder if Sir Herbert has not inadvertently slipped into an error here. It would also be interesting to know when the Snowdrop was first established at Monreith. Possibly about the fourteenth century when I think the first Maxwells took up their abode there. *Formakin.*

A SCLEROTIAL DISEASE OF NARCISSUS.

A HITHERTO unrecorded disease of Narcissus bulbs has made its appearance in England and is being investigated at the R.H.S. Gardens, Wisley. The disease has occurred on what appeared to be large, healthy bulbs which, however, failed to grow. An examination of some of them revealed the existence of rounded, flattened, black sclerotia embedded in the fleshy scales, parts of which had decayed. The sclerotia vary in size from $\frac{1}{16}$ inch to $\frac{1}{8}$ inch, and are situated on and in the scales beneath the papery brown scales covering the bulbs. A few are found on the necks, particularly if these be elongated; but none appears on the exterior. In some instances the central immature flower and flower stalk is decayed and contains sclerotia. When these sclerotia are separated from the fleshy scales and kept for some days in a warm, moist atmosphere, fructifications of the Botrytis type arise from them.

The sclerotia, their situation, and the fact that a Botrytis stage is connected with them, recall to mind the very similar disease of Tulips called "fire" which is known to be due to Botrytis parasitica. Other bulbous plants besides Narcissus and Tulips have similar sclerotial diseases, for instance, Spanish Irises and Snowdrops, and it has been shown on the Continent by Klebahn that the Botrytis parasitica on Tulips will not cause disease in any of the other mentioned plants. It may be an instance of biological races of B. parasitica similar to Puccinia graminis on the various cereals and grasses, and one of the objects of the present investigation is to find out if these diseases are at all related in this manner.

It will be recalled that in the Tulip disease, bulbs bearing sclerotia give rise to very small, stunted and reddish growths. Sometimes only one leaf makes its appearance above ground, and this is unhealthy looking from the start; it soon turns pinkish, wilts, and rots away. Sometimes two feeble leaves are produced, with a weak flower between them, but as before, the whole plant soon wilts and decays. From such plants the black sclerotia are left in the soil and it is through such infected soil that other plants are attacked, though how this exactly happens is not quite clear. An infected, stunted plant may infect the surrounding healthy plants the same season. Such plants may nearly always be detected if left in the ground to mature, for they turn a lighter brown in colour when they dry off, and often at the base of the flowering stem where it connects with the new bulb, small dot-like sclerotia may be seen.

The new bulbs themselves appear perfectly sound, but the sclerotia are close to them on the old flower stock, and next year they will most probably give rise to stunted, unhealthy plants.

With Spanish Irises the course of events is not quite the same. These plants will produce perfect flowers, and when at the height of their blooming will fall over on to the ground. The leaves rapidly wilt and turn pale, as also does the flowering axis, but the flower remains apparently unaffected. The flower may remain fully open when all the rest of the prostrate plant has withered to a pale straw colour. Such plants are easily pulled out of the ground, no bulb is present, and the base of the stem which has been beneath the soil is rotten, and bears elongated, thin, twisted sclerotia. *W. J. Dowson, Wisley.*

TREES AND SHRUBS.

RHODODENDRON MOUPINENSE.

So much has already been written about Rhododendron moupinense as to leave little of interest for the observer to chronicle. As the years pass it becomes more and more evident that R. moupinense must be included in the lengthening list of those precocious species whereof the flowering, or as it would be more correct to say, our enjoyment of the flowering depends on the temper of the climate.

Those who, year after year, have seen the beautiful blooms reduced to a pulp by an hour of snow, hail or rain, or seared by frost, may be excused if they find themselves wondering whether the game of growing these early-flowering species except in "favoured" gardens, is worth while. And then, just, perhaps, as they have decided that it is not worth while, Providence holds winter in check, the country passes from autumn to spring, as in 1922-3, with hardly a suspicion of frost, and looking on the early Himalayan and Chinese Rhododendrons in their unsullied beauty all thought of banishing such fine things is dismissed. This year the see-saw of our remarkable climate has brought us back to an unpleasant state of things wherewith we are all too familiar, and once again plants of R. moupinense in the open have been quickly shorn of their glory.

At such times the value of shelter is brought home to one, for in a cold greenhouse or an old vinery, R. moupinense may be seen at it best for at least a fortnight year after year.

The illustration (Fig. 65) shows such a plant under cover in Mr. C. Scrase Dickins's garden at Horsham, in February, 1924. The specimen is no stranger to readers of *The Gardeners' Chronicle*, for it was figured some years ago,* before its transference from the writer's garden to Coolhurst. At that time it was 2½ feet tall, and as it is now 3½ feet tall, and about as much across, the limit of growth is probably in sight. The flowers are suffused with the rich colouring of claret when the sun shines through it. Of totally different character, R. lutescens is another of the older, early-flowering Chinese species which may be grown under cover to advantage, and it is then worth having. *A. Grove.*

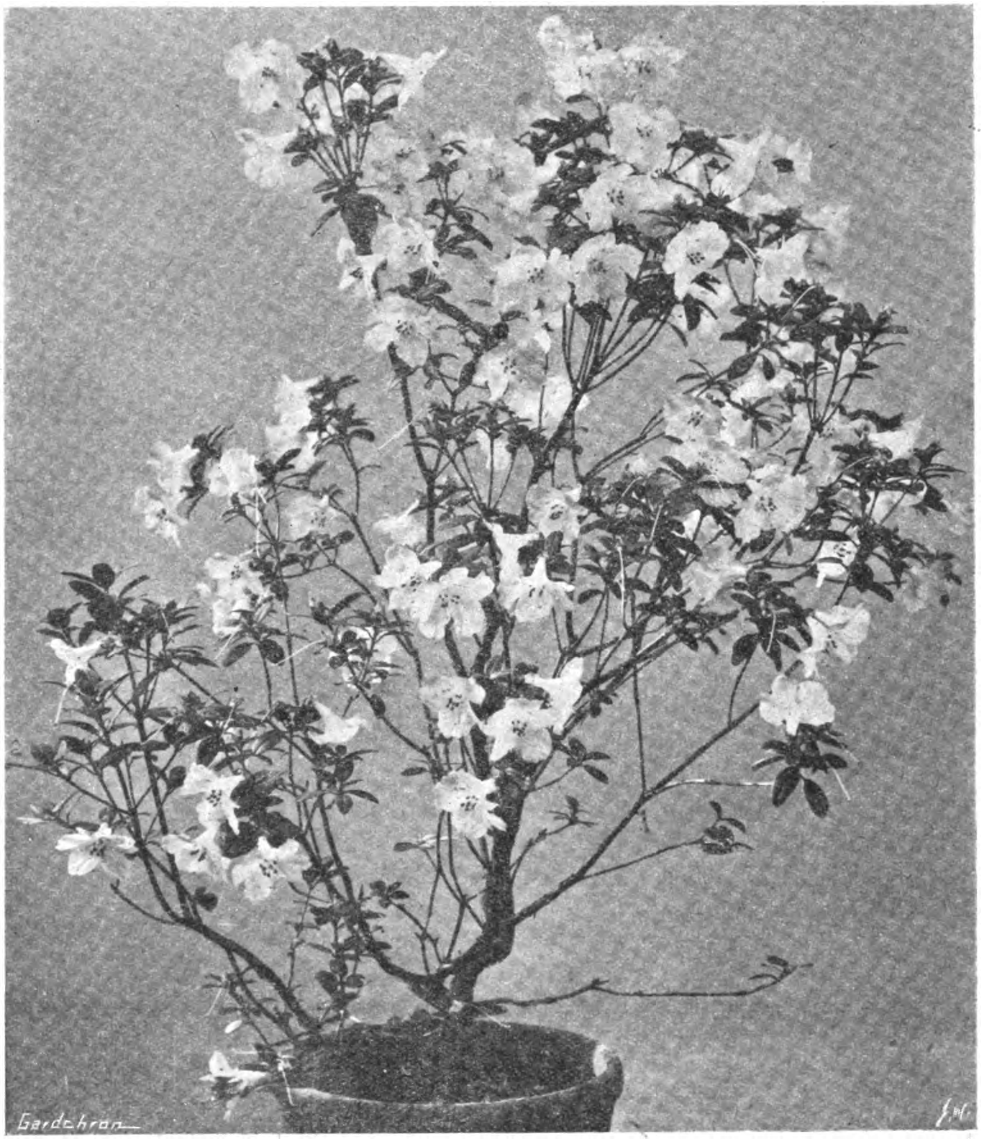

FIG. 65.—RHODODENDRON MOUPINENSE.

DOUBLE-FLOWERING VARIETIES OF CLEMATIS.

Spring is the time to plant the large-flowered Clematis, and one of the finest bowers I ever saw was clothed with double-flowered varieties. Many people find it difficult to establish these hardy flowering climbers, whilst slugs are one of the greatest enemies of the plant growers have to contend with. Some years ago I planted a number of choice double varieties, and the simple methods pertaining thereto may prove of interest.

A fair-sized hole was prepared for their reception, and to the soil was added a small quantity of burnt refuse, bone meal, soot, decayed cow manure, and flowers of sulphur. I placed two pieces of charcoal just over the surface of the planting site, which enabled the plant to rest on the charcoal. After planting, powdered sulphur was thrown over the plants and the surrounding surface soil; five small sticks were placed around each plant, about two inches from the stem, a thick, semi-twisted strand of cotton-wool being threaded around on the sticks near the ground to encircle the plants. This process arrested the slugs, etc., and allowed the succulent growths to develop without a check.

The following varieties are all double flowered.—Duchess of Edinburgh, pale silvery white; Lucie Lemoine, white; Beauty of Worcester, blue; Belle of Woking, silvery grey; J. Gould Veitch, silvery mauve, and purpurea elegans plena. *G. L.*

WASHINGTON THORN (CRATAEGUS CORDATA).

This beautiful Thorn does not appear, even in its native home in the South-eastern United States, to get much higher than the tree figured in the Supplementary Plate presented with this issue. This specimen stands one hundred-and-fifty yards west of the Palm House at Kew and is 20 feet high with a trunk 2½ feet in girth. Sargent gives the species a maximum height of 20 feet to 30 feet, and although from its distribution in a wild state, as given by him, it appears to be widely spread, he observes that it is nowhere common. According to Aiton it was introduced to this country by Philip Miller in 1738.

Crataegus cordata is undoubtedly one of the most elegant of all the Thorns, the slenderness of its shoots giving an air of lightness and exceptional grace to the tree. The leaves are of a brilliant green, usually 2 inches to 2½ inches long, scarcely as wide, triangular in main outline, but lobed and sharply toothed, the base often slightly cordate. It is one of the latest flowering of the Thorns, and the photograph from which our illustration was made was taken in July; this, of course, adds to its value. The white flowers are ½-inch wide and produced in corymbs 2 to 3 inches across. The fruits, which are depressed so as to give them the shape of an Orange, do not ripen until September or October, they are then bright scarlet and ¼-inch in diameter and remain long on the twigs. The tree is very hardy, and considering its varied attractions it is rather remarkable that it is not more common in gardens.

CHOISYA TERNATA.

Although the hardiness of this charming Rutaceous shrub is beyond question, it is in warm, sunny positions and in soils of a light nature that it flourishes best.

In choosing a position for this shrub it should be borne in mind that it has a tendency to flower very early, hence advantage should be taken of taller growing subjects to screen it from keen winds from the east and north-east, and also from the direct rays of the sun during morning frosts in the spring.

Under favourable conditions it soon makes a big leafy bush, the bright, glossy foliage of which is attractive during the whole year, and in spring its profusion of white, fragrant, Orange-like flowers, borne in terminal panicles, is a striking feature.

Few plants are so floriferous, for it produces large heads at the end of nearly every growth. In mild seasons some flowers may expand so early as November.

As a greenhouse plant, grown and flowered in small pots, it is very valuable for winter decoration, as it remains in beauty for a long time.

Propagation is easily effected by layering the lower branches outside, or by means of cuttings of half-ripened wood, taken in June or July, inserted in sandy soil and placed under bell-glasses in heat. *W. A.*

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* *Gard. Chron.*, No. 1739, April 24, 1920, Fig. 92.

SPARTINA TOWNSENDII.

(*Concluded from p.* 148).

Now let us see how it has fared with this plant on the French side of the Channel. The original records were for 1906, when Corbière located it at the mouth of the Saire in the Cherbourg peninsula, and in the estuary of the Taute and Vire (Baie des Veys), 30 miles further south, where the coastline of Normandy turns east. This 1906 record for the Vire was a matter of a few scattered tufts such as one might see to-day in one of the remoter arms of Poole Harbour, newly invaded. Since the war French botanists have been systematically examining their coastline with the result that a chain of localities stretching along the Normandy coast from the Vire to the Seine has been added to Corbière's original records of the Cotentin. In this connection I am indebted to the courtesy of Monsieur P. Bugnon of Caen, and of Monsieur P. Senay of Havre, in making known to me the literature concerned—much of it appearing in local publications. Proceeding from west to east the newer records with their dates are as follow; mouth of the Orne, Sallenelles, 1918; Ouistreham (a mere extension of the same locality), 1920; mouth of the Touque, Trouville, 1922; estuary of the Seine, Tancarville, 1915; Havre, 1922. In addition to these, Spartina Townsendii has also been recorded for the mouth of the Elorn, near Brest in Brittany, 1921.

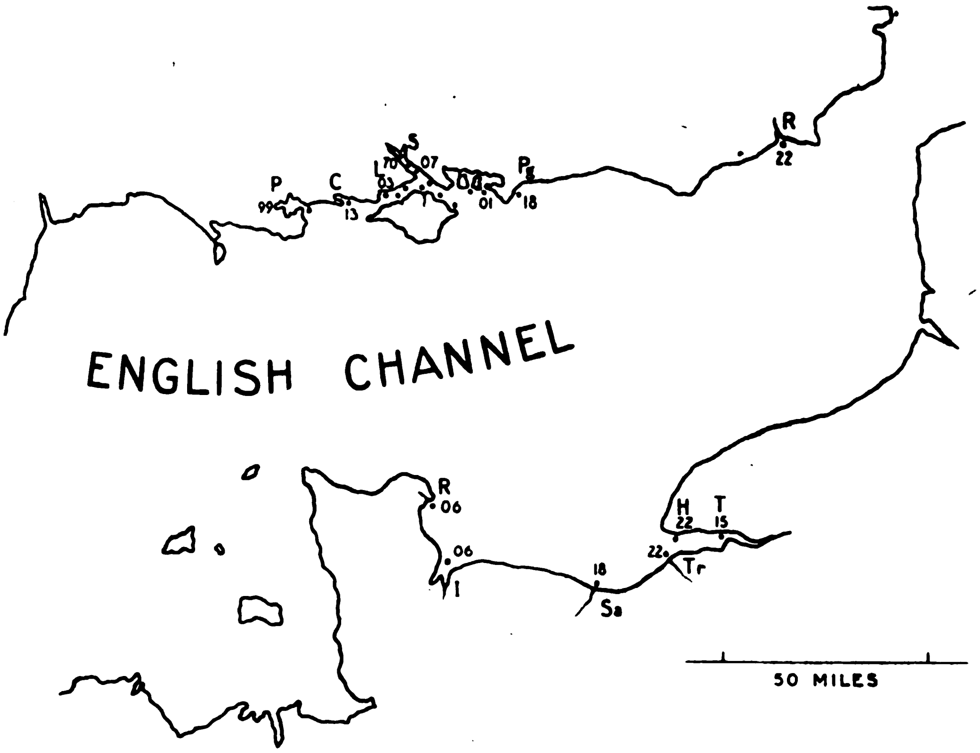

FIG. 66.—ENGLISH AND FRENCH COAST-LINE OF THE ENGLISH CHANNEL, WITH THE PRESENT NATURAL DISTRIBUTION OF SPARTINA TOWNSENDII AND DATES OF FIRST ESTABLISHMENT.

English Coast: P., Poole Harbour; C., Christchurch Harbour; L., Lymington; S. Southampton; Pg., Pagham Harbour; R., Rye Harbour. French Coast: R., Réville; I., Isigny; Sa., Sallenelles; Tr., Trouville; H., Havre; T. Tancarville.

Having recently had the opportunity of visiting several of these localites (Sept., 1923), the following notes may be of interest. The localities fall naturally into two groups, the new ones and Corbière's original records for the Cotentin dating from 1906. Taking Sallenelles, at the mouth of the Orne, the river which serves the city of Caen, the present Spartina establishment extends for a distance of about 1½ mile along the east bank, and consists for the most part of isolated tufts, 3-12 feet in diameter, mainly on the bare mud of the estuary, just below the marginal strip of saltings, a few on the saltings associated with Aster, Glyceria maritima and other halophytes. Opposite the village of Sallenelles itself the tufts occur at rather remote intervals, but half a mile nearer the mouth they are much closer together, and finally at the north end of the settlement, tend to merge into the meadow condition. To judge from a photograph published by Bugnon of the 1920 condition, it is evident that Spartina has rapidly consolidated its position in the last three years and is passing through the usual phases of establishment familiar in Poole Harbour and elsewhere. The mud of this estuary, though not really soft, is extraordinarily tenacious and sticky.

From Senay's description of the establishments in the Seine estuary (which I did not visit) it would appear that though less extensive than at Sallenelles, they are of the same order—isolated tufts of Spartina in bands in the shallow, marginal region.

Of the old localities, that of the Saire is relatively unimportant. This river, passing through low-lying marshland, discharges by a sluice just to the south of the village of Réville. The Spartina colony occurs opposite the outlet in company with Triticum pungens, Scirpus maritimus, and a few other shore plants. It is of very limited extent, and it may be supposed that no spread on to the adjacent shore has been possible on account of unfavourable exposure and consequent mobility of ground. Cursory observation indicated that the Spartina had not invaded the fresh water marshes above the outlet, probably a result of the efficient working of the sluice valves.

Proceeding south I passed ground suitable for Spartina, especially between St. Vaast and Morsalines, where the shore is relatively sheltered, but though I saw none, I should expect a more leisurely search to reveal other settlements, having regard to the period (seventeen years) that the plant has been established in the neighbourhood.

From Morsalines to the mouth of the Vire, above Carentan, the coast line is too exposed for this plant. The Cherbourg peninsula here is an enchanting country. Inland is the high ground with much irregular woodland and divided into small fields, reminding one of England. Well cared for Apple orchards are everywhere to be found (for cider), whilst the lower ground fringing the coast consists of drained marshes yielding a rich pasturage and supporting a multitude of cattle. The countryside is full of little villages and the prosperity of the marsh owners may be judged from the elaborate brickwork and oven masonry gates at the entrance of many of the pastures. The marshes are separated from the sea by a line of low sand dunes carrying Psamma.

The last of the localities to be mentioned is the Baie des Veys, the estuary of the rivers Taute and Vire. This was approached from the east by the village of St. Clément, about three miles north of Isigny. A belt of reclaimed marshes or polders is crossed, and on breasting the sea wall the amazing spectacle of a landscape filled with Spartina bursts on the eye. Not only is the plant everywhere, but in dense, mature, meadowed formation. It is easy to understand how astonished Corbière and Chevalier must have been when they revisited this district in 1921, fifteen years after their discovery of the plant in the phase of early settlement. Lymington, Keyhaven, and Poole Harbour provide sensations of the same order, but I recall nothing quite so dramatic as this surprise of St. Clément. Corbière and Chevalier estimated the area occupied as more than a thousand hectares—a matter of about four square miles, all in one block. Certainly in all my wanderings after Spartina I have never seen the like. It is true the form of this estuary, a broad, plain wedge without inlets or embayments, where every plant of Spartina goes, so to speak, into the shop window, favours early massing. But I cannot believe this to be the whole explanation. May not the differences in temperature ruling on the two sides of the Channel, especially at the critical periods of spring and late autumn, operate decisively in favour of more rapid expansion during the period of growth, and of more efficient seed production, and consequently increased capacity for dispersal in autumn? Quantitative data at present do not exist to carry the matter further, and in this place it is merely a personal impression that is placed on record.

In this bay there is still plenty of room for expansion. The Spartina outposts have yet to get abreast of Géfosse-Fontenay, a village nearly four miles north of St. Clément, whilst at Maisy, at the corner, no trace of Sparatina is visible.

Moved by the spectacle of the Baie des Veys, Messrs. Corbière and Chevalier* go on to express the opinion that Spartina is well fitted for the task of reclaiming the Bay of Mont St. Michel, thus adding a large area (perhaps 100 sq. miles) to the cultivated land of France. Those who are acquainted with the progress of Spartina in its various localities will probably agree that this is no exaggeration of the powers of this plant, and whether it is introduced by natural or artificial means, it is to be expected that fifty years should suffice for the fulfilment of this vision, and that a future generation will see wide green fields stretching from Cancale to Avranches. The mud flats here, as is well known, are very mobile and are subject to the terrific onrush of the spring tides, so that it might be advisable to accelerate the reclamation by judicious planting and the provision of temporary shelter.

The theory of the origin of this plant provisionally accepted in England is that it is a natural hybrid between S. alterniflora and S. stricta, the two representatives of the genus already present on the ground when S. Townsendii appeared.

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*Corbiere and Chevalier, *Comptes rendus*, vol. 174, April 18, 1922, p. 1084.

The case for this view is elaborated in Stapf's well known article in this journal (Jan. 18, 1908). The interest aroused in France by the spread of Spartina is leading to a reconsideration of the matter, and the view which is gaining support is that S. Townsendii is really identical with an American variety of Spartina glabra, distinguished as var. pilosa by E. D. Merrill in 1902.

As, however, the name Townsendii has more than twenty years priority of pilosa, the plant would come to be known as Spartina glabra var. Townsendii, should this identication be confirmed. In that event the plant would be an accidental introduction into Southampton Water from the U.S.A. fifty years ago and later finding its way to the French coast.

That the plant growing in France is the same as our S. Townsendii there can be no doubt. Not only is there agreement in the hand characters, but the habit of growth and the glint of the leaves in the sunlight is the same as in the English form.

The last word on the status of S. Townsendii must come from experiment. It is remarkable that plant breeders should so long have ignored its existence. As a mere phenomenon its establishment and spread is unique in our times, whilst economically it holds unlimited possibilities.

One of the outstanding results of the spread of Spartina, alike on the French and English coast, is the change of the landscape. The sombre mud of the foreground is now screened and diversified by this newly arisen sward of tender green, ever changing its tints according to the season and the lighting of the moment. This gives a value to the waters far beyond that which they possessed before. A grey sea becomes blue, and a blue sea azure. Poole Harbour, from being merely the sea approach to a commercial town, has now blossomed into a place of entrancing beauty. *F. W. Oliver.*

BULB GARDEN.

MONTBRETIAS.

THE newer hybrids of Montbretias have gloriously large and well-expanded flowers produced on tall, well-branched stems. The plants are worthy of inclusion in all sunny borders for flowering during the late summer, and they will continue in bloom until frost occurs. The pale yellow-flowered Citronella with dark eye, is a most beautiful variety, with which Ernest Davison, of deep orange shade, and flushed with red, makes a pretty contrast. The variety] George Henley [has tall, graceful panicles of chrome-yellow flowers, with a red eye, and is a particularly attractive sort. His Majesty, is undoubtedly one of the most glorious of all, producing well-expanded flowers, rich yellow in the centre, shading to brilliant scarlet, tipped with crimson at the edges. Norvic, is a fine yellow and red sort. Prometheus, has large, well-expanded flowers of deep orange colour, with a crimson central wing. Star of the East has large attractive flowers of orange-yellow colour, with a paler end. Westwick is a deep orange-red variety, with a clear yellow eye and central maroon ring.

Popular and less expensive varieties suitable for large plantings, include the following vigorous and free-flowering varieties: Fire King, Franz Hals, George Davison, Germania, Lady Hamilton, Lord Nelson, Queen Adelaide, Rayon d'Or, St. Botolph and Vesuvius. *W. L.*

GLADIOLI.

THESE handsome bulbous plants should form prominent features in every flower garden, as, whether massed in beds or grouped amongst other plants, they provide a rich and varied display during the summer and autumn. The soil is now in good condition, and the corms may be planted, covering them to a depth of four inches or five inches. *A.*

HARDY FLOWER BORDER.

MERTENSIA VIRGINICA.

THIS Mertensia is referred to in the Kew *Handlist* as M. pulmonarioides, and the name is adopted by numerous writers. It is, however, best known as M. virginica in gardens and nurseries, which is also the name given by Britten and Brown in their *Illustrated Flora of the Northern United States and Canada.*

It is a capital subject for the border, and thrives in most places. Sir Herbert Maxwell, in *Flowers: a Garden Note Book*, classifies it with other subjects under a chapter devoted to "Some Failures," and speaks of it as disappearing until lime was added to the soil. This remark is highly interesting, and I have no recollection of having observed this point before.

In its native habitats it is said to be a native of low meadows and along streams, which would point to a preference for a moist soil. In contrast with the experience of Sir Herbert Maxwell, the late Mr. Reginald Farrer, who extols its beauty, informs us that if "planted in deep and very rich, open soil, well drained, but in a sheltered position, where that lovely leafage shall take no hurt at the heartless hand of spring, and then for many years to come the Mertensia will yield you, undisturbed, an ever-increasing harvest of pleasure in its flowers and leaves alike."

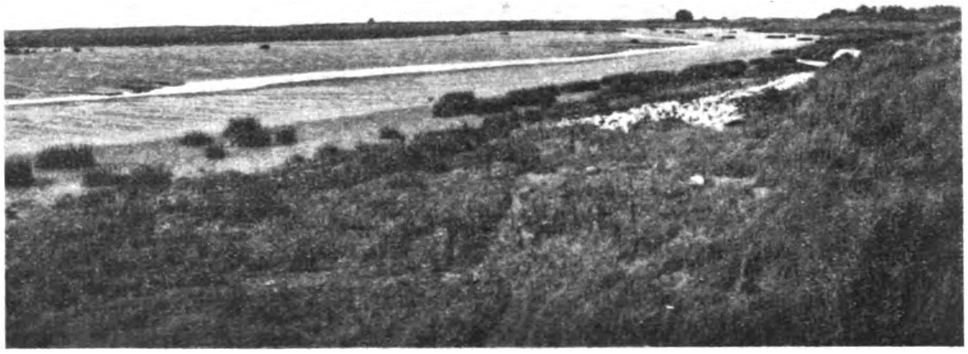

FIG 67.—TUSSOCKS OF SPARTINA TOWNSENDII ESTABLISHED ON THE TIDAL MUD AT THE MOUTH OF THE RIVER ORNE, NORMANDY, NEAR SALLENELLES (SEPT., 1923).

My experience with the plant is much the same as that of Mr. Farrer, in respect that I consider it likes a well-drained, rather light, loamy soil, and that there it increases and flowers quite freely. We frequently find that it does not answer to too slavishly attempt to copy the natural conditions in which a plant thrives at home. With us the greater or lesser rainfall may make all the difference and may neutralise our efforts in giving what should be suitable soil and other conditions.

As for the plant itself, it is one not so much for the casual garden visitor as for the one who delights in studying the many points of beauty possessed by such a flower without consideration of mere showiness. It is very delightful with its bronzy-green leaves, and its clusters of flowers of purple and blue and pink on stems three feet or so high. There is a good deal of confusion between M. sibirica and M. virginica in gardens, but the latter has the larger and showier flowers and is immeasurably the finer plant for garden decoration. It bears at home the popular names of Virginian Cowslip, Tree Lungwort, and Blue Bells. It is one of the most useful of the Mertensias—a genus named in honour of Professor C. F. Mertens. *S. Arnott.*

CHOICE BEDDING VIOLAS.

HAVING grown, as a trial, many of the bedding and exhibition Violas, I would give the following varieties as the best in their respective colours:—Yellow, Moseley Perfection; mauve, Maggie Mott; white, Snow Queen; cream, Lady Knox; deep purple, Archie Grant, and blue, Royal Scot. The above sorts are not recommended as having the largest flowers, but for the general merits desired in a bedding flower.

I find as a result of long experience that a small quantity of decayed cow manure and soot are the best fertilizers to ensure a long period of flowering and high colour and defined markings in the blooms. I strongly advise the use of these materials to all Viola growers. *G. L.*

FOREIGN CORRESPONDENCE.

I HAVE read the notice of the *Gartenschönheit* in the *Gardeners' Chronicle* (p. 99), and as a reader of many years standing of your valuable paper, I offer the following remarks. The yellow and orange coloured Orchid hybrids figured in *Gartenschönheit* are crosses made by me. Before the war I had about 30,000 seedling Orchids of every possible combination I could obtain; but during the war, owing to the lack of heating material, many of these were lost.

I have still in my collection, however, about 400 plants, which are now coming into flower, and I shall then have the pleasure of sending particulars of them to the *Gardeners' Chronicle*. Stems with twelve to fifteen flowers are not at all uncommon in these hybrids.

I am not able to give the exact percentage, as I have made so many crosses with L. cinnabarina, L. Jongheana, L.-C. G. S. Ball, etc., and with grand forms of Cattleya Schröderae and C. gigas. My employers have agreed that the names of the two Laelio-Cattleya hybrids referred to in your issue of March 1 shall be L.-C. Mrs. Clara Sielken-Schwarz and L.-C. Mr. Josef Schwarz. *P. Bauer, Gut-Mariahalden, Baden Baden.*

RAISING PLANTS FROM SEEDS.

ON the whole the winter has been most unfavourable to gardeners. The weather has been wet and the atmosphere moist, with few exceptions. Heavy or clayey land is, as a consequence, not sufficiently pulverised to be easily got into free working order, and it will be very difficult to prepare ground for the reception of fine seeds. To sow seeds of choice Peas, Onions, Carrots, and other vegetables on cold, wet and badly prepared ground is simply labour and expense wasted; under such conditions it is better by far to delay seed-sowing for at least a fortnight or more. A few days may make a great difference in the state of the ground, especially in March, as wind and sunshine combined soon dry the surface of the ground. The only thing for those responsible is to sow the seed directly the soil is found to be in a fit state to receive it.

The lighter gravelly or chalky soils may be worked at almost any time, and in such cases there is no difficulty in securing good and even rows of plants from seed. Some of the most fertile soils in the country are often the most difficult to cultivate, and nothing but a free use of the fork or Canterbury hoe has much effect on these stiff, clayey soils, and unless this extra trouble is taken, gappy seed beds will be the consequence. Where this state of affairs prevails, it is a good plan to make the drills a little deeper than usual for early Peas, Beans, Onions, Carrots, etc., and to distribute in the trenches a little sifted soil from the frame ground, and to place more of this material over the seeds.

In a season like the present, it is best to raise as many plants as possible under glass with a view to transplanting the seedlings in the open later. Very many failures may, however, be traced to raising plants too early under glass, long before they can be put out. Vegetable Marrows and Ridge Cucumbers should never be raised long before their summer quarters are ready for them; the end of April is sufficiently soon for sowing these crops unless hand lights or frames are available for covering the plants in their early stages. Marrows and outdoor Cucumbers raised from seeds sown direct in the beds early in May, not infrequently surpass plants raised earlier under glass, which often become drawn and starved.

Many failures may be traced to raising Celery too early; as a rule the first week in March is quite soon enough to sow a little seed of white Celery, and plants raised early require to be pricked out into frames and carefully protected. The seedlings intended to form the general crop of Celery should not be subjected to too much heat at any time; sow the seeds late in March or during the first week in April on gentle hot beds or in moderate warmth.

As a rule main crop Broccoli is sown early in March, and where there is a possibility of the seedlings being put out as soon as they are ready, not much harm is done. But as a rule the plants are raised early only to remain crowded in the seed-bed until the ground can be cleared of other crops and prepared for them.

In late districts it may be advisable to sow seed of mid-season and late Broccoli, and Savoys at the end of March, but in warmer localities the end of April is soon enough. Sown about these dates the seed germinates readily and the plants grow quickly.

If Salsafy and Scorzonera is sown much before the middle or end of April the plants are liable to run to seed. Beet sown too early becomes too large, while the best Carrots for storing are obtained from a sowing made late in April. By all means raise early batches of early and autumn Giant Cauliflowers, Brussels Sprouts, and, if needed, some Cabbage, but the seedlings should not be neglected in the seed bed.

Early in April is a good time to sow seed of Asparagus in drills made one inch deep and fifteen inches apart. If the seedlings are thinned they will form strong crowns, which may be transplanted in the following April.

The raising of flower seeds is a more important operation, but is more under the control of the operator than sowing vegetable seeds outside. Sowing choice flower seeds under glass is generally adopted as the best and quickest means of obtaining a good stock of many tender and hardy plants.

Failure of the seed to germinate satisfactorily frequently occurs through placing the seed pans in unsuitable positions where the atmosphere is either too damp or too dry, usually the latter. When failure results from too much moisture, it is often brought about by insufficient drainage, more especially in the case of seeds of slow growth.

Flower seeds may be divided into two classes, those that succeed best when sown on the surface of the soil, and those which require covering more or less according to their size and shape. Surface sowing should be adopted for all very minute seeds, such as those of Begonia, Lobelia, and Gloxinia. Many seeds which fail to germinate when covered with soil may be raised successfully when sown on the surface of the soil. The pots for this mode of sowing should be nearly half filled with drainage material, over which should be placed a layer of partially decayed leaves, the remaining space being filled to within an inch of the top with fine sandy soil. Whether the seeds require cool or warm treatment they are best placed in a position where the atmosphere can be kept moist, as germination often depends as much upon the moisture in the air as that in the soil. A sheet of glass placed over the seed pan is a great assistance. This, however, is not sufficient unless the pots are placed in a moist atmosphere. For seeds that need covering, much the same preparation of pots and soil is necessary, only the latter need not be so fine. Sufficient covering only should be used to first bury the seeds under the surface, as many failures may be attributed to deep sowing. Watering in these cases may follow sowing instead of preceding it. Darkness promotes germination, and it is well to shade the pots with paper for a time, but the paper should be removed on the first signs of life, taking care that the sun does not shine direct on the glass.

Seeds that are known to remain a long time in the ground before germinating are best placed by themselves in a position that is naturally shaded and where no harm will come to them. Age makes a great difference in the period of germination of seeds of slow growth, but never be in a hurry to throw seed pots away, as often, when least expected, patience is rewarded by the seedlings appearing. *F. Jordan.*

FRUIT REGISTER.

PEAR DOYENNE D'ETE.

MR. THOS. E. FURNELL does not over-praise this valuable early Pear in his note (p. 138), and it is undoubtedly a variety that is worthy of more attention than it seems to receive at present by those who are interested in the cultivation of Pears. Mr. Furnell states that he fails to find it catalogued. I have only three fruit lists before me as I write this note, and I find the variety included in each. The lists are those of Messrs. G. Bunyard and Co. of Maidstone, J. R. Pearson and Sons of Lowdham, and Storrie and Storrie of Glencarse. I have no doubt that this Pear will also be found in the lists of other growers of fruit trees.

My trees came from Lowdham and Glencarse and they were worked on the Quince. My experience with Pears on the light, dry, loamy soil of East Lothian—it is of this character in my parish—has taught me that the Quince is almost hopeless as a stock. Doyenné d'Eté has suffered in consequence, like all the others, but I now have it worked on the Pear. In my opinion the Quince is not a stock for a light, warm soil, but it would be interesting to know if others support this experience.

The question of the origin of Doyenné d'Eté was the cause of much controversy in the fifties and sixties of last century. Van Mons was mentioned as the raiser, but the evidence seems to indicate that this Pear originated in the gardens of the Capuchin Monks, at Mons, sometime during the eighteenth century, and probably in its early years. *George M. Taylor, Edinburgh.*

——WHILST I was at Mereworth Castle Gardens many years ago, a tree of this variety was trained as an espalier. It bore good crops almost annually, and especially at the ends of the individual branches. The fruits, which were much esteemed by my employers at that time, were rather small. Sometimes the earliest fruits were gathered and eaten direct from the trees, but mostly a few were gathered at intervals of a few days, a trifle under-ripe, and taken to the fruit room until they were ready for eating. As the fruits ripened early during very warm weather their season was brief, so that they had to be very carefully watched.

I had also growing on the same site and similarly trained, a tree of Colmar d'Eté, which ripened (if my memory serves me right) about three weeks later. The fruits were larger and better flavoured than those of Doyenné d'Eté. I thought highly of this variety, the flesh being very sweet and rich. Like all Pears ripening very early in the season it is soon past its best and should be eaten before it assumes a yellow colour, otherwise it is useless for dessert. This variety was raised by Van Mons in 1812 and in some respects resembles the first-named variety, which may have been a seedling from it. *H. Markham, Wrotham Park Gardens, Barnet.*

MARKET FRUIT GARDEN.

SPRAYING PLANS.

THE spring spraying campaign will start late this year, as the buds are backward; but it is necessary to make plans in advance. Routine spraying is best on a fruit farm. It is hopeless to wait and see what troubles appear and then apply a remedy. For the first spraying, just before the bloom of Plums and Apples opens, I am going back to soft soap and nicotine. Last year's experiment of substituting a casein spreader for the soap, so that arsenate of lead might be used with the nicotine, as a precaution against the expected caterpillar attack, proved an expensive failure, and will not be repeated. So far as caterpillars were concerned, it probably did good, but, as luck would have it, aphides turned out to be the pest of the season, and the omission of soap rendered the mixture much less effective against these. Fortunately the nicotine and soap mixture kills quite young caterpillars, but it does not leave any poison on the trees for those that hatch out later, or are hidden inside the buds where they escape the contact wash. Consequently a certain amount of damage is generally done before there is a chance to spray with arsenate of lead after the fall of the bloom. However, one cannot expect perfection.

When it comes to the use of arsenate of lead and summer fungicides, such as Bordeaux mixture or lime-sulphur, I thoroughly believe in the addition of a calcium caseinate spreader, as it causes the wash to run all over the surface of the leaves, forming an almost unbroken film of protective chemicals instead of the widely separated spots which are left when no spreader is used. It is probable, moreover, that, with the addition of a spreader, we might mix our fungicides weaker, and so reduce the risk of scorching and russeting. Half-strength Bordeaux mixture, such as is commonly used on Cox's Orange Pippin and other tender varieties, might prove as effective as full strength without the spreader. The experiment is worth trying, as it should, at any rate, prevent any injury.

The indications are, I consider, that this will not be a bad year for insect pests. If so, the following minimum spraying programme may suffice: (1) before blooming, with nicotine and soap; (2) just after blooming, with arsenate of lead, with the addition of Bordeaux mixture in the case of varieties of Apples liable to scab, and of Plums for brown rot; (3) a second application of Bordeaux mixture about three weeks later for Apples liable to scab.

Many growers use lime-sulphur instead of Bordeaux mixture because of the risk of scorching with the latter. I used to do so, but for the past two years have used a ready-prepared Bordeaux mixture made according to the Woburn formula, and so far I have not been able to prove any injury. It seems to be rather the better preventive of scab and canker. *Market Grower.*

VEGETABLE GARDEN.

KOHL RABI.

(BRASSICA OLERACEA CAULO-RAPA).

The Genus Brassica provides some of the most useful vegetable products in the Eastern Hemisphere, and the family is one of the most interesting, surprising, and accommodating in the whole realm of nature.

No one looking at the humble weed that wastes its sweetness on the seashore would for one moment imagine the wide range of possibilities that lie concealed in its slender frame, while the readiness with which it has lent itself to the art of the horticulturist and raiser, and the great and inestimable part it consequently plays in the nourishment of man and beast fills the mind of the thoughtful with wonder and surprise.

The particular member of this interesting family now under consideration is the Kohl Rabi or Turnip-stemmed (not rooted) Cabbage. Respecting this neglected vegetable, Mr. E. Beckett in his *Vegetables for Home and Exhibition* states:—"It is suggested that the plant may be a hybrid between some form of the Cabbage and the Turnip. Appearance and flavour lend colour to this suggestion, but are not, of course, sufficient evidence of hybridity. Perhaps some one will attempt to solve the problem, for it is a most interesting one." The following gleanings from various reliable sources may possibly throw some little light upon its origin even if it does not settle the question of hybridity. As regards hybridity, the fact that, like the many variations of Brassica oleracea, it has a vein of purple blood in its constitution seems to indicate it is a true Cabbage.

Although the date of origin cannot be fixed with any degree of certainty, the country from which it came to northern Europe is quite well known. Dodonaeus, the Flemish Botanist, in his *Herbal* (Leyden, 1616) states that the plant had first come to the Low Countries from "Grecianland." He gives a woodcut illustration of the entire plant which is reproduced in Fig. 68. Further on in his *Herbal* he states, "Kohl Rabi is sometimes grown instead of Turnips and is prepared (for eating) like them." From this it is evident that it was well known and used as a vegetable at the beginning of the seventeenth century. The journey from Athens to Antwerp appears to have been by way of Vienna and Prague, in both of which cities the vegetable had an intelligent reception and has made its mark. The coarseness and ugliness of the Grecian plant were eliminated and larger and more shapely "bulbs" were developed in their place. Both these cities were centres of culture and good living in those days, which conditions continued down to the commencement of the world war, and it is not surprising to find that the finest developments of the plant, valuable alike for forcing and open-air culture, bear their names. As an illustration Early White Vienna is the best of all.

In France a good deal of attention has been paid to the culture of Kohl Rabi (Fr. *Chou rave*), both for table use and especially for cattle feed. Mammoth and Goliath strains have been developed, which are of inestimable value to the peasant farmers of that favoured country. It is noteworthy that the size of the "bulb" does not necessarily imply coarseness of leaf, but both the larger varieties have in their young state sufficiently large leaves to prevent the evaporation of the moisture necessary for the plant.

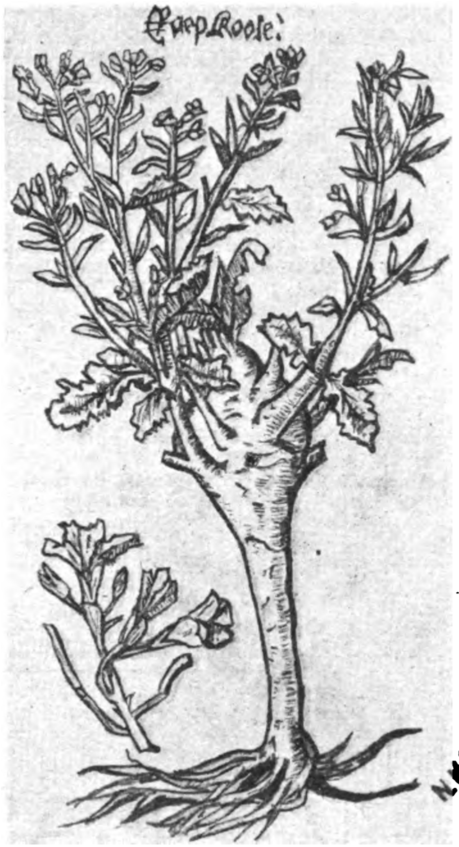
Raap Roole.
N.A.P.

FIG. 68.—KOHL RABI; REPRODUCED FROM A WOODCUT IN THE HERBAL OF DODONAEUS, 1616.

The date of the introduction of the Kohl Rabi into Britain is uncertain. Miller does not mention the plant in the 1759 edition of his *Gardeners' Dictionary*, although he was well acquainted with the *Herbal* of Dodonaeus and quoted from it. It has been suggested that the Brassica radice napiformi, or Turnip-rooted Cabbage, quoted by Miller, may be intended for the Kohl Rabi, but the Kohl Rabi is a Turnip-*stemmed* vegetable and not a root. That they were two quite distinct plants is confirmed by the fact that both were catalogued by seedsmen; as for instance, John Mason, predecessor of Cooper, Taber and Co., quoted in his catalogue for 1793, "Cabbage Turnip, above ground, and Cabbage Turnip, under ground." The first named was Kohl Rabi, and the second a coarse and primitive form of the White-fleshed Swede. Lawson's *Agriculturists' Manual*, 1836, confirms this, and Robinson's *Vegetable Garden*, 1906, corroborates it. It is a remarkable fact that at the present time the Continental seed firms quote English Rabi, green and purple, as quite distinct varieties, by which they mean the ordinary large varieties which are rightly grown for cattle. A slightly smaller form known as Dwarf-top Green is also of British origin and is highly esteemed by dairy farmers.

Here I may properly point out some of the special merits of this unique vegetable. First in importance is its resistance to drought and mildew. In the 1893 drought it was put to very severe tests by the dairy farmers in Essex and came out on top every time, whilst Turnips and Swedes, sown under similar conditions made a very poor show. Further experience in many different districts fully confirms this. These special merits exist in all varieties. The next important quality is flavour, and the universal testimony is that it does not impart any unpleasant flavour to the milk of cows fed upon it; while as regards table varieties, if properly cooked the flavour is both delicate and agreeable. The crop may be very easily grown both in frames and the open air. Planted after a crop of, say, May Queen Potatos are lifted they are fit for use in an incredibly short time. Of course, successive sowings from April to July are very useful.

A hint may not be out of place in regard to cooking. In the ordinary way, "bulbs," not more than 2½ inches in diameter should be chosen, taken fresh from the ground, cooked and served like Turnips. A better plan is to take "bulbs" about two inches in diameter, boil them until they are nearly tender, then slice them thinly and fry them in butter, and, after the first trial they will be in demand every day.

FRENCH MARROW STEM KALE.

(CHOU MOELLIER, BLANC ET ROUGE).

In Marrow-stem Kale we have a distinct variety of Brassica oleracea acephala which, although generally described as a forage plant may, nevertheless, be classed as a garden vegetable. Like the other forms of B. oleracea, it exists in two colours, green and red, the colour being the only difference in the varieties.

Strictly, it constitutes the connecting link between Cabbages which are grown for their leaves and those which are grown for their swollen stems, hence Robinson states: "The Kohl Rabi is only a Marrow Kale with the stem shortened into the form of a ball, the marrow or substance of the swollen stem being of the same nature, consistence, and taste in both plants."

Like the French strain of the Thousand-headed Kale, Marrow Kale is sensitive to cold: the large and fleshy leaves should therefore be fed off during the autumn and the stems stored where they will not suffer from frost. As regards its use for human food, Robinson states: "The stem of the Marrow Kale, if cut while young, when the swollen part does not measure more than twenty inches or two feet in length and two or three inches in diameter would, in our opinion, form a very palatable vegetable." The plant is of French origin and appears to be a comparatively modern introduction. *S. B. Dicks.*

COUVE TRONCHUDA.

This plant, which is better known to gardeners as Portugal Cabbage, is seldom referred to by writers. It is, however, a valuable type of Cabbage, easily grown, being sown and treated as is customary with the Cabbage tribe in general. One outstanding difference of this variety from the others is the large mid-ribs of its leaves, which may be cooked as Sea Kale, and form a really acceptable dish—especially should there be a shortage in other green vegetables, or a change is required. The heads of the plants, too, are tender and of good flavour when cooked. In addition the stalks when cut down quickly throw out another crop of succulent greens that are usable. This Cabbage may be sown early or late, according as to when it is desired to have the crop for use. *O. T.*

HOME CORRESPONDENCE.

Potash, Potatos and Vines.—I have at all times gained much information from the columns of your valuable paper, and like your contributor of the article on "Potash, Potatos, and Vines," p. 105, I am troubled, (or is it blessed?), with an inquisitive disposition. I have understood that the fertility of soils consists in an adequate content of calcium, potash, phosphates, and nitrogen, and should any one of these elements be deficient the values of the other three are lowered in proportion. My trouble is how to ascertain when these elements are present in the most economical proportions. Also, if other elements, such as iron, will neutralise any or all of them. I feel there can be no fixed standard for any length of time, because heat, drought, heavy rains, and evaporation will cause changes. A rotation of crops does something to balance matters, and a Leguminous crop adds to the nitrogenous content of the soil. I believe a crop of Beet or Mangolds is a good preparation for Potatos. All green, clean vegetable refuse and weeds, dug in, return to the soil much that has been taken from it, and there is additional food acquired from the sun and air. I am, however, at a loss to know when these essential elements are in their most useful proportion. Doubtless others will be grateful for this information.—*J. E.*

A Low Screen.—In a recent issue. *Novice* asked for suggestions for a background in certain positions. Besides the Broom he proposes, and which is admirable in many ways, although slow to form a dense mass, there is Cupressus macrocarpa for warm districts. All things considered, I would get some Oak posts, and train along the connecting rails, not to exceed four to five feet above ground, the most suitable Roses. Aimee Vibert, most of the Wichuraiana hybrids, Ayrshire, etc., carry foliage for the greater part of the year. *Will Tayler, Godalming.*

Young Lads and Horticulture.—Head gardeners have a very unthankful office at times in dealing with the men under them, who are not all of the same disposition, and it is courting disaster to be kind to some lads. I have worked at several large establishments under very strict "Heads," and have more respect for the men who were severe than the easy going ones. The men who are strict and stand no nonsense are those who instil in the minds of the lads the ground-work of horticulture. Doubtless the successful gardeners to-day would, if their opinion was asked, say that the strict disciplinarians they were under in their youth were the men who have made them what they are to-day. *Robert Eastwood.*

Black Currants.—*Market Grower's* remarks (page 109) on planting small fruits are of interest, especially in relation to the varieties of Black Currants which he mentions. During recent years Baldwin has fallen into disrepute owing to its alleged susceptibility to the attack of big bud mite, and Boskoop Giant has taken its place in popular favour. It is extremely doubtful whether this will prove to be sound policy in the long run. Boskoop Giant is unquestionably one of the worst in "running-off" as a consequence of imperfect fertilisation, and my questionable point so far as *Market Grower's* plants are concerned is whether French Black will provide the necessary pollen to ensure proper fertilisation in its neighbour. Baldwin, just as all other sorts, is liable to big bud mite, but it is a compact grower, a free flowerer, and a splendid setter, and if it does wear out in a year or two less time than some of its relatives it will have paid for itself, and in my experience substantially better than some other varieties whose life is longer. If I am not much in error Baldwin has proved itself the most consistent cropper of all the varieties grown at East Malling, and there I believe, as at other places, it is not more than normally subject to big bud mite, taking varieties one with another. It reverts, of course, but herein it is no more than a companion of others. One thing is very certain, and it is clear that *Market Grower* appreciates it, that Black Currants fruit more heavily when two or three varieties are associated than when only one is grown, so the matter of self-fertility and self-sterility of which we hear so much in relation to Apples and Plums applies to them too, or it appears to do so to the practical observer. One of the finest Red Currants that I ever grew in respect of quantity, quality, size and colour was a form of the grand old Red Dutch with extraordinarily deeply serrated leaves, but I do not know whether it is procurable at the present time or whether it has been honoured by re-christening. *W. T.*

Loss of Fragrance in Musk. — I was much interested in Mr. Holmes' article in *Gard. Chron.*, February 9, p. 78. The scented Musk was a very familiar plant with me in my young days, as my father grew a fair quantity at Bermondsey from 1844 to 1866. He and his brother must have had a few plants about 1830; they were given to them by a young German lady at Chelsea, where they were engaged in market gardening (where Redcliffe Gardens now are). They planted the first they had around a Gooseberry bush, and found that the plant grew freely; in time they started growing it in pots on hot manure. So soon as the shoots appeared they were raised with an inch or so of the white root and laid round a 60-in. pot and plunged in about twenty inches to two feet depth of hot manure. In a very short time the plants were ready for sale and two or three batches were grown on the same manure. It became a well known plant and was sold largely by hawkers from barrows. My father and his brother were, I believe, the first to grow the plant commercially. There is no doubt that the Musk grown in Chelsea Hospital Gardens originated from their stock; it grew well in the old pensioners' gardens and the old soldiers gradually traded and sold beds grown naturally, and in use after that forced. I remember (thinking to start growing it again about 1878) buying a bed at Chelsea for stock, but there was not the demand as of old, public taste having altered. *W. Poupart.*

Pseudotsuga Douglasii var. candida.—Judging from the article which appeared in your issue of March 1st, and the photo (Fig. 47) it would appear that Pseudotsuga Douglasii var. candida is a very lovely Silver Dougla-Fir, of good shape and with a straight leader. It is to all appearances a seedling (Prof. Henry sometimes calls it a sport and sometimes a seedling). I remember Pseudotsuga Douglasii Stairii many years ago in the nurseries of Messrs. Chas. Lee and Son, of Hammersmith; the specimens were shapeless trees without a good leader and appeared to be grafted from side branches. It would be interesting to know if the original tree was a seedling or a sport. *A. Astley, propagator to Messrs. Fletcher Bros., Ottershaw, Chertsey.*

The Late Mr. T. F. Cheeseman.—I cannot refrain from putting on record my profound admiration for Mr. T. F. Cheeseman and his work. His father emigrated to New Zealand with his family when young Cheeseman was eight years of age; at an early age he took up the study of natural history, especially botany, following in the footsteps of Banks, R. Brown, the Hooker's, and other noted botanists, Cook, Cockayne, and Colenso, so at the end he left an invaluable legacy in his works, botanical or otherwise. Notable among his works are his *Illustrations of New Zealand Plants*, mostly in natural size, and his work on the introduction of New Zealand plants in our gardens. *W. Botting Hemsley, Broadstairs.*

SOCIETIES.

KINGSTON, SURBITON AND DISTRICT CHRYSANTHEMUM.

At the annual meeting held recently the accounts for 1923 were presented. These show that the Society has improved its position very much, and has a good balance to its credit. It was decided to hold the next show at Surbiton Assembly Rooms on Wednesday, November 12, when many valuable silver cups and cash prizes will be competed for. The resignation of the secretary, Mr. T. Smith, who is leaving the neighbourhood, was received with much regret. Several members bore testimony to the valuable work he has done for the Society, and wished him success in his new home.

The Society won the shield for competition amongst the Affiliated Societies at the National Chrysanthemum Society's Show last November for the fourth time, demonstrating the high quality of the blooms grown in this district.

The new Secretary is Mr. W. H. Divers, V.M.H., Westdean, Hook, near Surbiton.

ROYAL CALEDONIAN HORTICULTURAL.

The ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on March 4, Mr. R. Fife, the president, occupied the chair.

A paper entitled "Changing Phases of Gardening," was read by Mr. John J. Jeffrey, Superintendent of Parks, Edinburgh. Mr. Jeffrey referred to the great changes that had come about even since immediately before the war, and to the fact that gardening propositions now-a-days were economical rather than aesthetic. This deprived the young gardener of much that was necessary for his complete training, to obtain which it would be necessary for him to spend some time in a botanical garden. Head gardeners seemed to agree that at present there was lack of enthusiasm among young gardeners, but they had had much to discourage them, and the years of the war interrupted, and, in some cases spoilt the careers of promising young men. Only in a few instances had the lady gardener been a success, as few of them would go through the practical training necessary for it.

Amateur gardening, however, had made great strides. He also alluded to the many changes in the kinds of plants grown, to the growing popularity of decorative subjects like Chrysanthemums, Roses, Carnations, Sweet Peas, &c., to the marked departure from the formal garden design generally, and to the immense improvement in the character of vegetables.

The exhibits were:—Cinerarias from St. Leonards' School of Gardening; Hyacinths from Miss Edith Barty, and Daffodils from Mr. James Arnott.

NEWCASTLE HORTICULTURAL MUTUAL IMPROVEMENT.

At the monthly meeting of the Newcastle and District Horticultural Mutual Improvement Society held on February 26, at Collingwood Café, Mr. R. E. Richardson presided over a very large company to hear an address on "Our Seeds" by Mr. Fox of Messrs. Finney and Co., Newcastle.

The lecturer stated that the seed trade of this country was very extensive, and a wide knowledge of horticulture, agriculture, aboriculture, soils, climate and world conditions generally was required by anyone who hoped to conduct a successful business. He mentioned many sources of seed supplies, including those from the several home counties where crops were grown for seed on an extensive scale, and said it was advantageous to grow local crops for seed, more especially the Brassica tribe, which resulted in plants of a very

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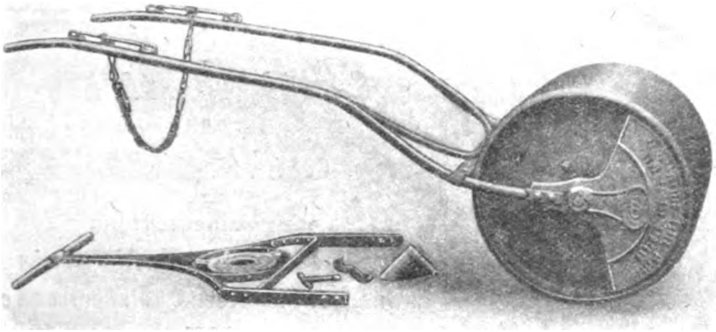

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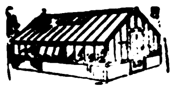

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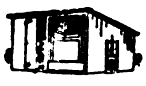

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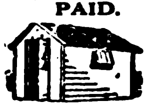

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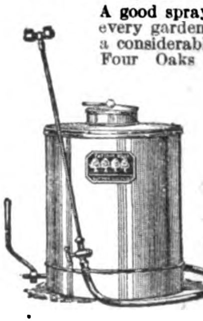

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strong constitution. The purchasing of foreign grown seed must be conducted with great care, particularly with regard to Peas.

The work of the seedsman was also outlined and the principal operations of cleaning and testing were described. The packeting of seeds, both by hand and by machines, entailed an enormous amount of work, and the seedsman had to prepare for unexpected demands for a particular article. The merchant had to well look ahead for he had often to contend with such things as a late harvest, failures of crops, strikes, etc.

The speaker also dealt with many reasons for seed failing to germinate. In many cases it was not the fault of the seed but often could be put down to wrong soil conditions.

A keen discussion followed the lecture and the many questions were ably answered.

The Chairman, in moving a very hearty vote of thanks, spoke highly of the very useful nature and practical value of the lecture. Mr. Fox responded and said he would be pleased to help the Society in any way he could.

HORTICULTURAL CLUB.

A Dinner, followed by a lecture, was held by the Horticultural Club in the Trocadero Restaurant, Piccadilly, on Tuesday, the 11th inst. The lecture, entitled "Edible and Poisonous British Fungi," was delivered by Mr. J. Ramsbottom, O.B.E., M.A., President of the British Mycological Society, and his remarks were illustrated by a series of excellent lantern slides in colour. Mr. Ramsbottom briefly referred to the methods by which fungi are classified according to the arrangement of their spores and then proceeded to give illustrations of the larger fungi, pointing out the characters by which the edible and poisonous kinds may be determined. He stated that there were five hundred species of edible fungi found in this country, but that very few were made use of and most persons knew only the common Mushroom. The chief characters are the presence of volva, such as is found in Amanita, a genus which includes the most deadly poisonous fungi known, although a few species are edible—the annulus or ring, the lamellae or gills and the pileus or cap. In some of the fungi the spores are not developed on gills but in pores, such as in Xylaria and Poronia. In some the spores are developed in a fruity body which opens at the summit or tears irregularly when the spores are discharged and a typical example of this kind is met with in the puff balls, Lycoperdon. Mr. Ramsbottom then proceeded to describe the various Toad Stools and Mushrooms belonging to such genera as Amanita, Lepiota, Tricholoma, and Clitocybe, in which the gills are decurrent; Mycena, Volvaria, Peziza, Marasmius and Psalliota, which includes the common Mushroom, P. campestris, better known to most of our readers as Agaricus campestris. The lecturer stated that there were no safe rules for determining whether a fungus was edible or poisonous beyond the correct identification of the plant. The common belief that when animals and insects eat Toad Stools and Mushrooms they are also harmless to human beings is erroneous, for slugs will attack Amanita phalloides, which is the most poisonous fungus known. The French consider that fungi may be rendered harmless by boiling them in salt water to bleach them or by treatment with salt or vinegar. This method, however, is not wholly reliable. Mr. Ramsbottom referred to the changing of the colour of the flesh of many of the fungi when broken or rubbed with the finger; in Boletus badius the flesh becomes blue and other fungi turn pink, red and other colours when the tissue is broken. This phenomenon is due to either an oxidising enzyme or an oxidising substance present in the mycelium.

The question of fairy rings was touched upon and Mr. Ramsbottom showed that the cause of the ring was due to the growth of the mycelium in a radiating direction from the germinating spore. When the mycelium reaches a certain stage of growth the fructifications are developed and the Toad Stools or Mushrooms appear in a circle. The action of fairy rings on grass was seen in an area with stimulated growth of the grass, an area where the grass was killed, and the outer area where the vegetation was again extra luxuriant. The reason for these various areas was that in the first one the mycelium caused chemical and physical changes in the soil, resulting in an extra amount of nitrates which are available for the grasses. In the dead area the mycelium becomes so matted that the air and rain are prevented from entering, so that the grasses die of drought and starvation, whilst in the outer ring the fungus brings about increased fertility in the soil through various changes and the decay of the fungus itself. Mr. Ramsbottom stated that the age of the rings is determinable, and in Colorado rings of this character were estimated to be from 200–400 years old.

In the discussion which followed the lecture, Mr. Ramsbottom was asked to explain how it was possible for, say, a Mushroom, to displace large and heavy slabs of stone or penetrate through asphalt paths. Mr. Ramsbottom stated that the explanation was not an easy one, but it was probably due to osmotic pressure through absorption of moisture in the mycelium.

READING AND DISTRICT GARDENERS'.

The fortnightly meeting of this Association was held on Monday, the 10th inst., when Mr. M. Goddard presided over an excellent attendance of the members. The lecturer was Mr. A. J. Cobb, of Reading University College, and his subject was "Garden Roses," this being his third lecture before the Association on this popular flower. On this occasion the several points touched upon were hybridizing, stocks, soils, manures, insect pests, diseases, and individual taste in Roses. A very instructive discussion followed the lecture.

In the competition for six sticks of Rhubarb, the first prize was awarded to Mr. E. Cooper, Isomes Gardens, Warren Road, Mapledurham, the second to Mr. C. J. Howlett, The Yews, Earley, and the third to Mr. F. Townsend, Hillside Gardens, Reading. In the non-competitive section, Mr. W. Broomfield, The Gardens, Clyffe House, Mapledurham, staged several magnificent specimens of Cyclamen, one plant carrying no fewer than one hundred and forty-seven blooms and buds (First-Class Certificate). Mr. G. Carter, The Gardens, Chazey Hill House, Upper Warren Road, Mapledurham, showed a vase of extraordinary large spathes of Arum Lilies (First-Class Certificate). An Award of Merit was given to Mr. C. J. Howlett for two interesting plants of Echeveria retusa. Mr. W. Chislett, Bill Hill Gardens, Wokingham, staged an interesting exhibit of pieces of Apple wood, showing the fructification of Silver Leaf disease, and diseased wood, dark in colour.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

There was a good attendance at the annual general meeting of members of the United Horticultural Benefit and Provident Society, held in the Lecture Room at the Royal Horticultural Hall, on Monday, March 10. Mr. C. H. Curtis presided.

Following the usual, standing, silent vote in memory of members who fell during the war, the annual report and balance sheet for 1923 were presented, and from these we gather that eighty-one new members were admitted during the year, and the total membership now stands at 1,769. The income for the year, including a balance brought forward from 1922, came to £6,331 16s. 8d. and the expenditure to £4,389 14s. 11d., this including the purchase of £1,500 New Zealand 4% stock. The balance carried forward to 1924 is £1,942 1s. 9d. The experience of sickness was particularly large, and the sum paid out on that account was £960 14s. 2d. Including sums paid regularly to chronically disabled and aged members, the total disbursements from the Distress Fund came to £229 17s. 0d., while withdrawals from members' private accounts amounted to £597 3s. 8d. In these and other ways the report indicates the immense usefulness of the Society.

Reference was made to the annual dinner at the Imperial Hotel, Russell Square, on November 1, when Sir William Lawrence, Bt., presided, and also to the losses by death of Mr. T. Winter, a former Treasurer, and of Mr. Edwin Burge, who was a member of the Committee for a long period of years.

In the statement of liabilities and assets we find that the Society has investments to the amount of £67,118 2s. 0d., and there is a reserve fund amounting to £8,515 3s. 1d. to meet any depreciation in value of investments.

The attendances of the various officers and members of committee were appended, and these show the great interest the Committee takes in the work of the Society.

The Chairman moved the adoption of the report and accounts, and the motion was seconded by Mr. Gaskell and carried unanimously. Votes of thanks were accorded to Mr. Bedford, the Hon. Treasurer; to the Trustees, Messrs. James Hudson, R. Scott, and C. H. Curtis; to the Auditors, Messrs. Gunner and Puzey, who were re-elected; and to the Committee, all the members of which were re-elected. A vote of thanks was passed to the Horticultural Press and special reference was made to Mr. A. Dawkins, who generously advertises the Society in his seed catalogue. A sum of £100 was voted from the surplus interest account to the Management Fund, to be used by the Committee for advertising the Society, and a small grant was made to the Secretary for extra services rendered in connection with the State side of the Society's business.

The report and accounts of the State Section for 1922 were presented, and these showed that the business is conducted so economically that members receive many additional benefits, especially in connection with assistance for dental and optical treatment. It was pointed out that owing to the late date on which the Government auditors audit the accounts of the State Section, the Committee is not able to bring them before members until they are practically a year old.

This concluded the general business. The members then resolved themselves into a Special General Meeting to consider two recommendations from the Committee—one for the purpose of increasing the funeral benefits in certain scales; and the other to reduce the qualifying period for sick pay from twelve months to six months. There was comparatively little discussion on these points and when the motion to alter certain rules to put these recommendations into effect was moved by the Chairman, seconded by Mr. Crask, it was adopted with only two dissentients.

A vote of thanks to the Chairman concluded the somewhat lengthy proceedings.

GARDENING APPOINTMENTS.

Mr. J. Osmond, previously Gardener for eleven and a half years at Ebrington Hall, Campden, Gloucestershire, and Barfield, Farnham, as Gardener to Miss A. T. Purcell, at Lythwood Hall, Shrewsbury, Salop. (Thanks for 1s. for R.G.O.F. Box.—Eds.)

Mr. W. Rich, for seven years Gardener to the late A. K. Loyd, Esq., Downs House, Steventon, Berkshire, and one year Gardener to R. A. Loyd, Esq., at the same address, as Gardener to the Earl of Effingham, Tusmore Park, near Bicester, Devon.

Mr. H. E. House, for twelve years at Bramham Park, Boston Spa, acting as general foreman for the past three years, as Gardener to Sir William Bass, Byrkley Lodge, Burton-on-Trent, Staffordshire.

TRADE NOTES.

We learn from the Secretary of the British Carnation Society that the following new varieties of perpetual-flowering Carnations have been registered during 1923:—Duchess of York, salmon, stippled and pencilled reddish salmon, and Susan Pam, rose cerise, both from Messrs. Stuart Low and Co.; Floralies, rose pink; Scarlet Iona, scarlet; Red Laddie, scarlet, during warmer weather brick red; Vera, rose pink, and Red Peerless, orange scarlet, brick red during warm weather, all from Mr. C. Engelmann; Sharston Gem, red, from Mr. Chas. H. Hill; Our Prince, scarlet, from Messrs. W. E. Wallace and Son; Fairy, white overlaid and suffused with crimson; Dixie, yellow ground, striped carmine, and Glorious, bright salmon rose, all from Mr. Charles Wall; Lumley Castle, scarlet, from Mr. F. Stocks; and Winsome Wharton, from Mr. Joseph Batty.

A meeting of the Chamber of Horticulture was held on the 29th ult. to decide whether evidence should be given before the Ministry of Health Departmental Committee of Inquiry, with a view to asking for the inclusion of glasshouse piping and boilers as machinery for purposes of rating. The terms of reference of this Departmental Committee which commenced to function on the 4th March are as follow:—"To inquire into the present law and practice in regard to the rating of machinery and plant in England and Scotland respectively, to make recommendations as to the alterations which are desirable and practicable, having regard to the financial and other considerations involved, with a view to removing inequalities, and, if possible, assimilating the law and practice of the two countries; and to make definite proposals for giving effect to such recommendations."

The whole question was thoroughly discussed, and it was the general opinion of the Committee that evidence should be given.

For purposes of giving evidence Mr. J. B. Slade was appointed chief witness supported by Messrs. Joseph Rochford, and H. O. Larsen of Lea Valley, and Mr. A. G. Linfield of Worthing. The undermentioned proof of evidence has been submitted to the Ministry of Health:—The erection of glasshouses represents an expenditure for more intensive cultivation. In order to make glasshouses more effective they are fitted with boilers and hot water piping, and it is contended that these boilers and piping should be treated as machinery and therefore not assessed for purposes of rating. In the majority of cases greenhouses contain boilers and hot water piping, the former sometimes being fixed in brick work, but in many instances above ground. The quantity of piping varies according to the use made of the glasshouses, and if the principle be continued of including this together with boilers in the assessment, it means a tenant's expenditure of additional capital in this directien by reason of his skill and knowledge gained from experience is rated.

The Ministry of Health has accepted the proof of evidence submitted and will acquaint the Chamber as to the date on which witnesses will be heard.

It is interesting to note that the general committee of the British Florists' Federation has elected a Market Floral Committee, consisting of twelve members, which is empowered to grant certificates to plants, flowers, and foliage considered useful and desirable for cultivation for market purposes. The certificates are of two classes, a Provisional Certificate and a First-class Certificate, but the premier award may be withheld until a deputation from the committee has inspected the plant under growing conditions. The committee will give special attention to novelty, colour, form, habit, petal, stem, beauty and grace, and adaptability for packing, transport and market handling of plants, flowers and foliage submitted to its judgment. The meetings will be held monthly and the dates for 1924 are April 28, May 26, June 23, July 21, August 25, September 22, October 20, November 17, and December 15. Messrs. Geo. Monro, Ltd., 3, Tavistock Street, Covent Garden, W.C., have kindly placed a saleroom at the disposal of the committee which will meet on the above mentioned dates at 12 o'clock noon. The plants, flowers, and foliage, submitted for the consideration of the committee must be staged between 11 a.m. and 11.30 a.m., and must not be removed before 1.30 p.m. Nurserymen, seedsmen, market growers, professional gardeners, and amateurs, are entitled to send plants and flowers and no entrance fee will be charged. Exhibitors, who need not be members of the British Florists' Federation, must notify the secretary, Mr. C. H. Curtis, 5, Tavistock St., Covent Garden, W.C. 2, of their intention to submit specimens not later than the first post on the Thursday preceding the date on which the Floral Committee meets. The committee will undertake to stage and return exhibits provided such a request is made to the secretary when the entry is made; all reasonable care of the exhibits will be taken by the committee, but it will not accept any responsibility in regard to them. *Bona fide* members of the horticultural press will be admitted at the conclusion of the judging, and notification of awards made will be sent to the horticultural press. The committee appointed for the current year consists of Mr. W. E. Wallace (Chairman), Messrs. Geo. Monro, or representative, Geo. Shawyer, or representative, David Ingamells, Percy A. Cragg, Ernest Stevens, D. Sweet, Frank Ladds, W. H. Page, C. Engelmann, E. Hill, and A. A. Finchman.

ANSWERS TO CORRESPONDENTS.

Begonia Mite: *Anxious*. The best method for ridding Begonias of mite is to dip the plants in a solution of soft soap and nicotine, which may be made by dissolving one teaspoonful of Campbell's Nico-Soap in one gallon of water. The fluid should be placed in a bucket and the dipping may be readily performed by turning the plant upside down, securing the soil and plant by placing the fingers around the base of the stem. The plant should only be allowed to remain in the solution for a few seconds; this method ensures both surfaces of the leaves being covered with the insecticide.

Bi-flowered Snowdrop: *A. T. H.* The production of two flowers caused by the branching of the primary flower-scape cannot be regarded as a common occurrence in the Snowdrop, although Tulips frequently exhibit this peculiarity. Instances have been recorded of Galanthus Elwesii major throwing so many as four flowers on a scape, but there appears to be no record of the common Snowdrop behaving in this manner.

Correction: The note on p. 141 headed "Cladrastis tinctoria" refers to C. sinensis. C. tinctoria is the Yellow-wood of the United States and is an old tree in gardens. The mistake in the name was made in the *Kew Bulletin*, from which the note was taken.

Dealers in Botanical Requisites: *A. H.* The following firms, from whom catalogues may be obtained, deal in second-hand microscopes and botanical requisites:—Messrs. Chas. Baker & Co., 244, High Holborn, W.C. 1, and Messrs. Watkins and Doncaster, Ltd., 36, Strand, W.C. 2. The prices of microscopes have a considerable range, but one costing about £7 and possessing 1″ and ¼″ objectives should be satisfactory for rough botanical work.

Disfigured Pelargonium Leaves: *F. J. D.*: The disfiguration of Pelargonium leaves is not due to the presence of either fungi or insects, and no doubt the damage has been caused by over-watering the plants or by allowing water to settle on the foliage.

Gartenschöneit: *J. W.* The *Gartenschöneit* is published at 14, Akazien Allee, Westend, Berlin.

Grub Attacking Aubrietias: *A. J. L.* The grub is the larva of the St. Mark's Fly and is fairly common. Eggs are laid in the summer, and most of the insect's life is spent in the grub stage in the soil. The soil should be dressed with napthalene applied at the rate of about one to two pounds per square rod, or with Vaporite.

Lawns and Tennis Courts: *W. B.* A book entitled *Lawns and Greens* may be obtained from our Publishing Department post free for 4s. 6d.

Names of Fruits. *C. E. G.*: 1, Castle Major; 2, Greave's Pippin; 3, Broad Eye Pippin. *H. C. C.*: 1, Northern Greening; 2, Golden Russett; 3, Braddick's Nonpareil; 4, Ribston Pippin.

Orange Tree not Flowering: *Anxious*. Both the female and male organs are formed in the same flower of the orange, and it is difficult to decide why your specimen fails to bloom. The tree should be allotted a place in the greenhouse where it can obtain the maximum amount of light, and during the summer it should be given plenty of water. Syringing with tepid water should be performed early in the morning and again in the afternoon from February onwards, so as to keep the foliage in a clean, healthy state. Water must be partially withheld during the autumn and winter but on no account must the soil be allowed to dry out. The specimen, if it is in a pot or tub, may be stood out of doors in a sheltered, warm position from July to September, or if allowed to remain in the greenhouse, plenty of light and air must be admitted. The winter temperature of the greenhouse should be about 50° and this may, with advantage, be increased another 10° during February. In spring a temperature of 70° to 75° is recommended.

Unsatisfactory Hyacinths: *Q. R. S.* The trouble cannot be accounted for by the presence of any disease or pest. The bulbs have failed to produce roots, and as a result they have developed very poor leaf and flower growths. The bulbs have made no new roots, and close examination reveals that there is only a trace of new root formation inside the bulb. Consequently their unsatisfactory condition could not have been brought about by faulty soil, and it would appear that the bulbs were defective when you received them.

Communications Received.—A. B. W.—W. L.—A. T. H.—E. G. J.—E. S.—H. A. S. S.—H. C., Geneva.—W. C.—W. K.—R. E. A.—F. W. J.—T. B.

CATALOGUES RECEIVED.

Maurice Prichard and Sons, Riverslea Nurseries, Christchurch, Hampshire.—Herbaceous and alpine plants, aquatics, shrubs, etc.

J. Cheal and Sons, Ltd., Lowfield Nurseries, Crawley, Sussex.—Hardy flowers, Dahlias.

Kent and Brydon, Ltd., Darlington.—Farm seeds.

Stuart Low Co., Bush Hill Park, Middlesex.—Roses, Carnations.

E. P. Dixon and Sons, Ltd., Hull.—Farm seeds.

Barr and Sons, 11, King Street, Covent Garden, W.C.2.—Hardy perennials, Rock plants, Alpines, Aquatics, Hardy climbers, etc.

W. Cutbush and Son, Barnet Nurseries, Barnet, Herts.—Herbaceous, alpine and bulbous plants; Hydrangeas; Chrysanthemums; Pentstemons; Dahlias.

Wheldon and Wesley, Ltd., 2, Arthur Street, New Oxford Street, W.C.2.—Books on natural history, including horticultural works.

The Little Library (Gertrude Grieve), 63, Melfort Road, Thornton Heath, Surrey.—Modern gardening books.

THE

Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 46·10.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 17. 10 a.m.: Bar, 29°; temp. 46° Weather—Cold and bright.

International Plant Pathological Conference at Wageningen.

IN June of last year an International Conference on Phytopathology and Economic Entomology was held in Holland and, judging from the *Report** which has just been issued, the meetings and outings were highly successful. The Conference was arranged by Prof. Dr. H. M. Quanjer, Acting-Director of the Phytopathological Institute of Wageningen, who gained the interest and support of the Dutch Ministry of Agriculture and was ably assisted by a Committee of Management, consisting of fourteen Dutch scientists and horticulturists, in arranging a programme of great and extended interest. The Conference was attended by sixty-five foreign members representing twenty-five nationalities, and no fewer than seventeen members attended from Great Britain and Ireland. The objects of the Conference were to discuss the international problems relative to plant diseases and pests, to exchange ideas, and to examine the Dutch phytopathologists' methods of plant hygiene and disease control. The Netherlands, as a purely exporting country and with its highly developed horticultural crops, must necessarily devote much time to the investigation of diseases for the purpose of meeting the special regulations enforced by importing countries, although we must add that some nations, rightly or wrongly, have instituted restrictions which make international trade in plants next to impossible. The subject, however, is one of too great complexity and cannot be treated in the detail it deserves in this resumé of the work of the Conference, but from an international viewpoint the importer must, without doubt, be supplied with healthy plants, and the grower and exporter should be equally desirous of selling healthy stock. The onus, of course, rests with the grower, for he knows full well that any dissatisfaction on the part of his customers must ultimately mean loss in trade to himself. In Holland there appears to be a harmonious co-operation between the work of the grower and that of the plant pathologist. The State is fully equipped with a competent staff of advisory inspectors, and it is of interest to note the progress made in the control measures against the Cabbage Fly (Chortophila Brassicae), an extremely injurious pest to the Cauliflower crop. The use of tarred plant collars was advised by the Pathological Service, and in 1918, the first year of propaganda, about five thousand collars were used; the second year the number increased to forty thousand; in 1920 to two hundred thousand; the next year to eight hundred thousand, until, finally, in 1922, one million eight hundred thousand were known to have been employed. No doubt the statistics for 1923 will show a proportionate increase. It seems strange to us that the use of this collar has not been universally adopted in this country, for we have seen large tracts of this important vegetable crop ruined by the pest, and its yearly toll must be heavy. Yet even before the war the use of the collar was recommended in Great Britain, but there was no propaganda movement connected with the recommendation. The Conference *Report* contains much valuable information, and as the Conference had its headquarters at Wageningen it is not surprising to find that many papers and discussions dealt with the more obscure diseases of Potatos, including those usually grouped under the heading of "virus" diseases. Everyone interested in this crop is acquainted with the important work accomplished by Dr. Quanjer on the "curl" type of diseases and this investigator gives a concise description, together with representations in excellently coloured plates, of no fewer than seven distinct troubles of this type which are now recognisable. In connection with this work, for which Wageningen is famous, a series of five articles on Aphides by English, French and German experts appropriately finds a place in the *Report* for it is now fully established that these insects may act as "carriers" of the virus disease from one plant to another. The *Report* is by no means confined to Potato problems; many other important questions are dealt with in the thirty or so papers reprinted, including one by Dr. E. Van Slogteren on "Modern Methods of Combating Bulb Diseases." The question of international legislation, to which we must refer once more, proved to be a matter of great importance and the paper presented by Mr. H. T. Gussow, of Ottawa, Canada, on "Plant Protection Problems of an Importing Country" gave rise to much discussion and evident misunderstanding and as an outcome the following resolution, supported by Dr. J. C. F. Fryer, of Harpenden, was unanimously acepted by the members:—"The representatives of all nations assembled at the International Phytopathological Conference of June 24-30, 1923, in Holland, desire to place themselves in record as in full agreement with the essentials of trade and commerce in living plants or plant products, namely, reasonable freedom from insect pests and plant diseases of all kinds of material imported into or exported from any country." In connection with the Conference a very pleasing function was the inauguration of the Laboratory for Mycology and Potato Research, which is specially equipped for the purpose of studying Potato diseases and of which Dr. Quanjer, with his band of assistants, is in charge. Other matters of interest included the foundation of the "Eriksson Prize" for the encouragement of investigation by graduate students in Europe, not holding official appointments nor receiving any remuneration. The social character of the Conference was not lost sight of and the hospitality of Dutch friends was freely lavished in a manner which those who had the good fortune to participate in will ever remember.

Peter Barr Memorial Cup.—At the meeting on Tuesday, March 25, the members of the Royal Horticultural Society's Narcissus Committee unanimously awarded the Peter Barr Memorial Cup for 1924-5 to Mr. J. K. Ramsbottom, Assistant Managing Editor of *The Gardeners' Chronicle*, in recognition of his work in investigating the Eelworm disease of Daffodils and discovering a cure by a method of sterilising the infected bulbs in hot water. Mr. J. K. Ramsbottom commenced his investigations at Wisley and carried them on so successfully at Spalding in Mr. Monro's bulb farms, that his method of curing the disease is now generally adopted by bulb growers. The Peter Barr Memorial Cup is held for one year only, and it is of interest to observe that in 1923-4 it was awarded to Mr. C. H. Curtis, who compiled the various editions of the *Daffodil List* and acted as Hon. Secretary to the Narcissus Committee for twenty-one years, so that two members of *The Gardeners' Chronicle* staff hold it in successive years.

Kew Herbarium.—*Kew Bulletin* No. 1, 1924, gives some interesting particulars of the work done during 1923 in the herbarium at Kew. No fewer than 2,571 collections were purchased during the year and 18,317 collections were received as donations or in exchange. The number of specimens laid out and prepared for mounting was 25,760, whilst the specimens mounted totalled 28,927. The total number of specimens incorporated in the Herbarium during the year was 30,305. The various collections represented specimens from Europe, the Orient, North Africa, the Atlantic Islands, China, India, Malaya, Australia, Polynesia, New Zealand, Tropical Africa, Madagascar, South Africa, North America, South America and the West Indies. The British herbarium formed by Dr. Geo. Lloyd between 1825 and 1843, containing some specimens collected by Sir William Hooker, has been presented, through the good offices of the Bournemouth Natural History Society, by his widow to Kew. The usefulness of this national herbarium is seen from the fact that over five thousand visits were made by botanists and other interested persons during the year.

Dahlem Botanic Garden.—A severe "cut" in personnel is taking place just now at the botanic garden of Dahlem, near Berlin. A third of the staff, consisting of over fifty persons, has been given notice, in pursuance of a policy of strict economy which has lately been adopted by those in authority. This is naturally a great blow to those in charge of the gardens, but it is being received with philosophy by the remaining hundred or so persons among whom the work will now be divided, and who recall that during the dark days of the war, when a similar misfortune befell the gardens, the plants suffered far less than might have been expected, owing to the devotion displayed by the depleted staff.

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* *Report of the International Conference of Phytopathology and Economic Entomology, Holland*, 1923. Published by the Committee of Management and Edited by T. A. C. Shoevers, Secretary of the Committee.

Legacy to a Gardener.—The late Mrs. Elizabeth Catherine Rodgers, of Maplehurst, Knighton, Lincolnshire, who died on December 29 last, left her gardener, Mr. Edwin Atkins, if still in her service, a piece of garden ground in Sydney Road, Knighton, £200, all her garden tools, and any plants or small shrubs he may select.

French Autumn Exhibition at Rennes.—On the occasion of the Twenty-fourth International Congress of the Societé Francaise des Chrysanthemistes, the Union of Horticultural Societies of Ille-et-Vilaine will organise at Rennes (Pavillon des Lices) from the 5th to the 10th November, 1924, an exhibition of horticultural produce and of poultry, bees, hunting, and fishing. Particulars of the show may be obtained from the Commissaire General, E'cole d'Agriculture des Trois-Croix, Rennes (I.-et-V), France.

Newcastle Flower Show.—Owing to a deficit of over £200 in connection with the Flower Show held at Newcastle last year, there was every likelihood of this year's exhibition being abandoned, but *The Newcastle Chronicle* has offered to take over the financial risk of the show, and hold an exhibition in 1924. The offer is made on the conditions that the Town Moor and Parks Committee will allocate the necessary land for the holding of the show on the terms as previously; that the trade will give their support with their usual exhibits; that a working committee is appointed to carry out the necessary details of the show and that the prize fund is guaranteed by the public. The flower show committee has accepted the offer and will constitute the working committee to assist in carrying out the necessary arrangements. It was agreed to hold the show on Tuesday, Wednesday and Thursday, September 2, 3 and 4. The Newcastle Flower Show was established in 1824, and the Society hopes to commemorate the centenary of the flower show by increased enthusiasm for this important social fixture of the town.

An Autumn Horticultural Exhibition at Antwerp.—The Horticultural Syndicate of Antwerp is organising a great general horticultural exhibition to be held in that city during the month of September next. The schedule is already in the press and a copy will be forwarded to anyone making application for it. The promoters do not propose to award first, second and third prizes in the various classes, because, too frequently, two or three of the exhibits in a particular class are almost of equal value; instead, each exhibitor will receive a prize in proportion to the value of his exhibit and the artistic merit displayed in its arrangement. All branches of horticulture will be encouraged, including florists' flowers, floral decoration, fruit and forest tree cultivation, market gardening and plants. The Syndicate has received a promise of financial support from the Government of the Province and from the municipality: the latter, besides placing a large area at the disposal of the Committee has voted a large subsidy and offers the assistance of the department of Public Parks, not only in organising and carrying on the exhibition, but also in making the parks, gardens and promenades under its control especially attractive during the period of the exhibition. Numerous important festivities and exhibitions will take place in Antwerp this year, including a battle of flowers, a big provincial agricultural exhibition, a town parks exhibition, a colonial fair, a bakery exhibition and a domestic gas exhibition, and certain of these events will coincide with the horticultural show. Their Majesties the King and Queen of the Belgians have promised their patronage and will give one of the prizes, and most of the important people of the city and province of Antwerp have submitted their names for inclusion in the Committee of Honour.

Mr. A. D. Cotton, F.L.S.—The Keeper of the Herbarium at Kew, Mr. A. D. Cotton, who succeeded Dr. Stapf when the latter retired from that position in 1922, is fortunately still a young man with, it is hoped, a long life of usefulness before him. As a youth he showed an intense love for plants, and quite early in his career gave evidence of a marked leaning towards the lower orders—Fungi and Algae. For a short period Mr. Cotton studied as a student in the old gardens of the Royal Horticultural Society at Chiswick, and afterwards worked for three years at the Royal College of Science, taking up his botanical studies under Prof. Farmer. It was here that he became attracted to the study of Cryptogamic Botany. His first position was that of Demonstrator and Assistant Lecturer in Botany at Manchester University, a position he occupied from 1902-1904, and during that period he worked on Lichens and Marine Algae. In the latter year he was offered and accepted the position of Assistant in the Cryptogamic Department at Kew. Here he assisted the late Mr. George Massee in his work on plant diseases and, continuing his former studies, he published numerous papers on Fungi and Algae At the beginning of 1915 he was transferred to the new Plant Pathology Laboratory on Kew Green, in charge of the mycological section. In 1918, he was appointed Mycologist to the Board of Agriculture, and later transferred to the Ministry's Laboratory of Plant Pathology at Harpenden. While at Harpenden he organised the Official Plant Disease Survey (Mycological Section), and especially studied the diseases of Cereals and Potatos. Largely as a result of a visit to the United States of America, he investigated the virus disease problem in England, and subsequently travelled considerably in England and Scotland to ascertain the actual economic importance of these diseases in so far as they affect Potato crops. As a result of the energy with which he carried out his investigations, and remembering his botanical achievements, it was no surprise to his many friends when in 1922 the Ministry of Agriculture invited him to succeed Dr. Stapf and to fill the important position he now holds so ably at Kew.

MR. A. D. COTTON, F.L.S.

Instow Spring Flower Show.—Miss Hinchliff, Worlington House, Instow, is arranging a spring show to be held in the Rifle Hall, Instow, on Thursday, April 3. As in previous years there are classes for cut Daffodils, other flowers, cut flowering shrubs, pot plants, bulbs in fibre, and Apples. There are no entrance fees. The exhibits will not be judged, consequently no prizes are offered, but cultivators in the Instow district are invited to enter what they are able to show in one of these sections. Free passes are given to exhibitors and admission to the general public is 1s. 6d. from 2.30 to 5.30 and 6d. from 5.30 to 8 p.m. Any profits accruing go to the purchase of Rifle Club furniture. It is of interest to observe that the first of these exhibitions was held in Worlington House, but afterwards at the Rifle Hall, and each year Miss Hinchliff has received greater support, and an increasing interest has been taken in the exhibition.

Trial of Spraying Machines.—The Royal Horticultural Society will carry out a trial of all types of apparatus for wet and dry spraying, and have fixed Wednesday, May 7, 1924, for that purpose. Makers are invited to send their apparatus to Wisley for this trial. Makers own assistants may be present to explain and to work the machines, etc., so that they may appear to the best advantage. The hour at which the trial will commence will be communicated later, but apparatus may be sent to Wisley any day before the trial and must be there ready for use by 9 a.m. on Wednesday, May 7. Apparatus may be removed by the senders immediately after the trial, but it will be necessary for photographs, drawings and specifications of all apparatus to which the Certificate of the Society is given, to be deposited with the Society for identification purposes before the apparatus leaves Wisley

Loans to Agricultural Co-operative Societies.—The Ministry of Agriculture states that it is prepared to consider applications from agricultural co-operative societies for loans to enable them to develop forms of co-operation directed to the preparation and marketing of agricultural produce. Provision will be made in the estimates of the Ministry for the year 1924-25 for this purpose. Interest will be charged on the loan at 5 per cent per annum, and the loan will be repayable in instalments spread over a period not exceeding twenty years. Both interest and repayment of principal will be payable half-yearly. The first payment in respect of both interest and principal may, if the society so desires, be deferred for thirty months after the date when the loan is actually paid over by the Ministry, or, if the loan is made in more than one instalment, thirty months after the date when the first instalment is paid. The first payment to the Ministry will be six months' interest on the whole amount of the loan and a proportion of the principal according to the period of the loan.

Fruit Growing in Morayshire.—Aided and advised by skilled teachers from the North of Scotland College of Agriculture, experiments in fruit farming on a large and organised scale are being made on Morayshire farms. It is expected that this year an area of about thirty acres will be planted on the lines of the fruit farms now existing in Perthshire and the home counties of England. The fine natural advantages of Morayshire have already indicated what can be achieved in this direction, and the Governors of the College feel sure that, given a normal season, the results of their experiments should show farmers that profits may accrue from fruit growing. Black Currants, one of the most profitable of small fruits, will be the chief crop, and a College organiser is to give assistance in the marketing of surplus stocks and in the grading and preparing of fruit and vegetables for market.

Horticultural Exhibition at Stuttgart.—A horticultural exhibition is to be held at Stuggart, Württemberg, about the middle of August next, with a special class for novelties. The annual German "Gardeners' Day" is to be held at Stuttgart this year in conjunction with the exhibition, which will give the occasion an added interest.

Jamaica Banana Industry.—Some interesting data regarding the Banana-growing industry in Jamaica was given by Sir Arthur Shipley, Chairman of the Governing Body, Imperial College of Tropical Agriculture, in *The Times* of March 18. He states that although Jamaica is usually associated with sugar and rum, fruit growing is the chief agricultural industry and the value of exported fruits, including Bananas, has grown from £350,000 in 1915–1919 to £1,700,000 in 1920. The chief fruit exported is the Banana, of which some 55,000 acres were grown in 1921, and 15,000,000 bunches are exported annually, chiefly to the United States of America. To meet the increased demand for this fruit new areas are constantly being opened up, and in the parish of St. James alone no fewer than five thousand acres are being brought under cultivation this season. The growers are, however, seriously troubled with a disease known as the Panama disease. It is caused by a Fusarium which attacks the walls of the vessels of the plants, resulting in the leaves turning yellow and then drying up. The valuable Gros Michel variety is highly susceptible to the disease. Endeavours are being made to raise a resistant strain, but the Banana seldom forms seeds. As a result, however, of some twenty-two thousand hand pollinations a number of seedlngs have been raised, but not in sufficient quantity to enable experiments to be made on a large scale.

Appointments for the Ensuing Week.—Tuesday, April 1: Croydon and District Horticultural Society's meeting; Royal Caledonian Horticultural Society's meeting. Wednesday, April 2: Morley and District Paxton Society's meeting; Royal Agricultural Society's Council meeting. Thursday, April 3: Nottingham and Notts. Chrysanthemum Society's meeting. Saturday, April 5: Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Literary Piracy of Floricultural Publications.*—This vice has reached a point that is become intolerable, and it ought to be more than censured: it ought to be stopped entirely. Reproof is as useless to these compilers as a poutlice to the hide of a rhinoceros. As a glaring instance, look at the last number of Harrison's *Floricultural Cabinet*; of "Notes on New or Rare Plants," which are either extracted or compiled, there are two pages. From the *Gardeners' Chronicle* there are three and one-third pages; from Gardner's *Travels in Brazil*, four pages; from *The Florist*, a third of a page, and nearly the same amount from the *Cottage Gardener*, a total amount of ten pages of other writer's property appropriated by the proprietor of that work. I have taken the *Floricultural Cabinet* for years and have written more than once to the editor complaining that a reader, like myself, of the *Chronicle*, and similar works, have reason to be dissatisfied with such conduct, but it was never attended to, so I pen these few lines hoping his eye may meet them in your columns when next he may be levying his contributions upon them. I have no objection to pay the price for half the matter, but I dislike sanctioning this species of literary robbery as I should dislike buying a 4-lb. loaf when I knew 1-lb. of it was made of stolen materials. Mr. Johnson wants looking up also: a friend of mine used his list of nurserymen and seedsmen in his Gardening Almanack of this year, to forward his trade circulars, but before he had got far into it he had a number of his letters returned; but this is a small fault compared with his piracies. *Fair Play. The* Court of Chancery offers an immediate and final remedy for these malpractices, which belong to the class of offences for which some swindlers have been just transported, and for which others will, no doubt, travel the same road. The legal offence is different but the moral offence is the same. *Gard. Chron., March* 31, 1849.

Publication Received.—*Grass.* By A. J. Macself. Cecil Palmer, 49, Chandos Street, Covent Garden, W.C. 2. Price 15s. net.

LUPINS.

There is a tradition that during the flight of the Holy Family into Egypt the Lupin received the reproaches of the Virgin Mary because the noise the plants made when trodden on drew the attention of Herod's soldiers to the spot where the tired travellers were resting. Whether this is true or not, praise is due to our modern Lupins for their great beauty and for the pleasure which they bring to those able to grow them in their own gardens or see them growing elsewhere.

The name Lupinus, *lupus*—a wolf, was given to the plant because it was supposed to destroy the fertility of the soil in which it was growing. The Lupin, as a matter of fact, fertilises the soil by means of the bacteria which live in its root-nodules and are able to gather nitrogen from the air and fix it for use in the soil. On the Continent it is quite a usual custom on poor, sandy, soils to sow crops of Lupins and then to plough or dig them in so as to enrich the ground.

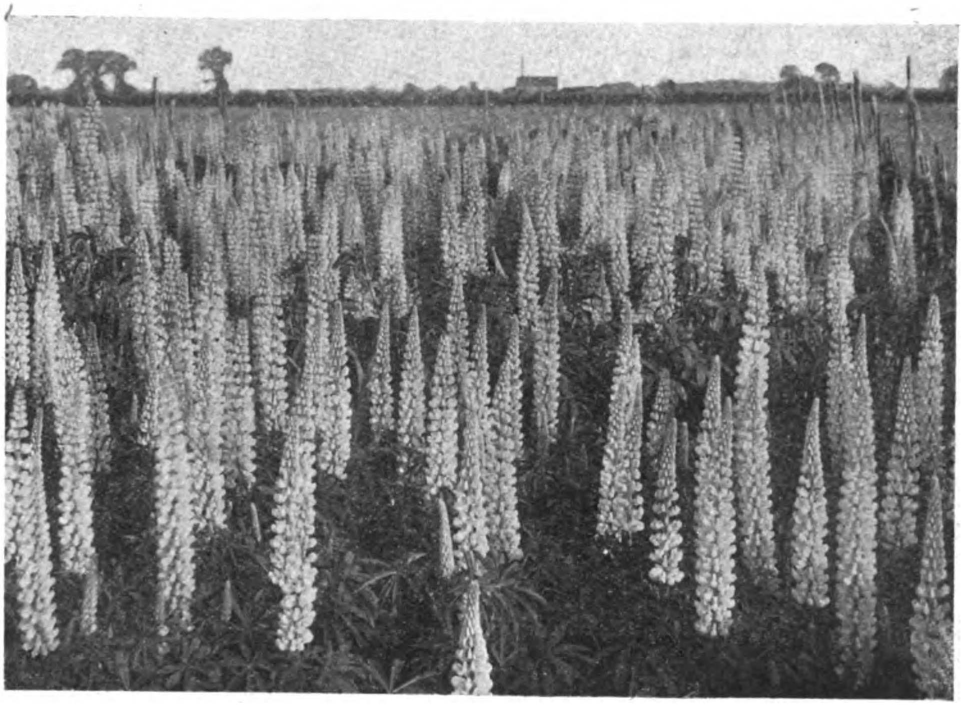


FIG. 69.—A FIELD OF LUPINS AT CHICHESTER.

There are between eighty and ninety species in the genus and nearly all of them are worth growing. An interesting point is that in Europe nearly all the species are annuals, whilst in America they are mostly perennials. Lupins do not transplant well. They are nearly all of easy cultivation and if seed of the perennial sorts is sown in March and April and the plants treated as annuals, they will flower during the autumn of the same year. The plants may be divided during March or April. A border of Lupins makes a picture that is not soon forgotten and the floral display will last from May to September. Seed pods should not be allowed to form or the period of flowering will be greatly shortened. In spring the perennial sorts should be afforded a mulching of rotten manure.

The garden varieties have mostly been derived from the herbaceous Lupinus polyphyllus, which is synonymous with L. macrophyllus. This species is a native of California where it grows from three to four feet in height. The dark blue flowers are borne in spring and autumn. The plant is a hardy perennial and the best times for planting it in English gardens are in the months of March or October. The white form is equally popular.

The popular Tree Lupin, Lupinus arboreus, a half-hardy, evergreen, shrubby species found in California, is very fragrant and bears flowers of a delightful shade of yellow. In California it grows between 2 feet and 4 feet in height and flowers all the summer. In the South of England it often forms large bushes six or seven feet high which are smothered with blossoms, but in the cold parts of our northern counties the shoots may die down every year. It is readily propagated by means of seeds. Cuttings of the young wood pulled off with a heel of the older wood will strike readily in sandy soil in a warm, moist house or frame. The white variety Snow Queen is very beautiful and a new variety raised by Mr. Carlile of Twyford and named Light of Loddon is certainly a plant to include in all gardens. Other very fine varieties are Primrose Dame, with cream-coloured, fragrant flowers, and Sunset which is yellow, shaded with old gold.

Tree Lupins may be flowered from seed the second season, and the seed may be sown in March or April, either in frames or out-of-doors. It should be covered with about a quarter of an inch of fine soil, and the seedlings should be thinned to six or eight inches apart, and moved into their permanent quarters in the early autumn or spring. The tree Lupins often die of premature old age when about five or six years old, and young plants should always be available in order that any gaps may be filled.

A new race of perpetual-flowering hybrids has been formed by crossing Lupinus arboreus with Lupinus polyphyllus. The plants carry long spikes of flowers varying in colour, some being yellow and blue whilst others are yellow and white, blue and white, soft primrose-yellow shaded rose, etc. Some of the best are Sunshine, a bright, golden yellow; Nelly, which has white flowers tinted with rose; and The Bride, the sweetly fragrant blooms of which are a soft primrose-yellow, shaded with delicate rose.

The advance in the polyphyllus section is amazing, and new colours are being created each year by such firms as Messrs. R. H. Bath, Mr. Downer, Chichester (Fig. 69); Messrs. Barr & Sons, Messrs. Harkness, Bedale; Mr. Carlile, Twyford; and Mr. Clarence Elliott. Practically all the varieties listed by these firms are of great beauty and in selecting a few I do not wish in any way to minimise the charm attaching to others. Downer's Delight is a very striking variety, the colour of which is difficult to describe. Mr. Downer refers to it as a deep red, but I should describe it as a terra-cotta and dull crimson bicolor. The flowers become a deeper red as they age, and although not so beautiful as some of the paler toned varieties Downer's Delight should be included in all collections. Downer's Pink Pearl is a splendid variety with flowers of a gorgeous shade of deep rose. Favourite is light wedgwood-blue, whilst Tunic is shell-pink and white. Highlander, Seaside and May Fly are all beautiful shades of pink. Taplow Purple, and Zulu, a rich violet-purple variety, are two fine varieties offered by Messrs. Barr and Sons, whilst the deep mauve Felicity and the pretty, soft lilac H. Marshall which is tipped with chrome, were raised by Mr. Carlile. The strain of Lupins raised by Messrs. Harkness and Sons include some lovely and uncommon combinations of colour, the finest of which are Dazzler, Fortunata and Mascot, all of which have apricot and yellow flowers, whilst Merry Times is a biscuit-fawn and Joy is apricot-pink with yellow wings.

Mr. Clarence Elliott, of Stevenage, has introduced a very sweetly scented strain known as the Six Hills Scented Hybrids.

Amongst the species well worth growing in this country are the following:—

L. Hartwegii, a Mexican perennial, usually grown in our gardens as an annual. During the period between July and October the plant grows to a height of about 2½ feet and bears quantities of beautiful blue flowers with creamy white keels. L. Hartwegii coelestinus is a lovely variety with pale blue flowers. The best plan is to sow seeds in the border and thin the young plants to nine or ten inches apart. So soon as they show signs of blooming pull up and destroy any which exhibit the rose form as these are not nearly so beautiful as the blue ones.

L. perennis, which flowers during May, June and July, grows only two feet high and has beautiful blue flowers. It is a perennial and native of North America. The plants root very deeply and are difficult to transplant. Seeds should either be sown where the plants are meant to remain or else in pots, and the young plants placed in their permanent quarters as early as possible.

L. nootkatensis is another dwarf perennial species flowering between May and July and averaging only 12 to 18 inches in height. The blue flowers are often stained and streaked with white and yellow. This Lupin thrives in almost any soil or situation and the whole plant is very hairy.

Amongst the annual species we find some beautiful plants. L. atrococcineus bears beautiful crimson-scarlet flowers and the variety hybridus has blooms tipped with white. L. densiflorus, which hails from California, only grows to a height of 9 to 12 inches and in July produces numerous white flowers stained with pink or yellow.

L. pubescens bears violet-blue flowers with white centres from July to September, whilst L. sulphureus has faintly perfumed, sulphur yellow flowers, borne on spikes 1½ foot in height. L. luteus, sometimes known as L. odoratus, is the fragrant yellow Lupin so useful for ploughing into poor, sandy soils. This annual species grows about 1 to 1½ foot high, and is a native of Sicily.

L. mutabilis is a very fragrant, half-hardy, evergreen plant, although it is generally treated as a hardy annual. It is a native of South America and grows to a height of 3 to 5 feet, flowering from June to August. The colour varies and may be white mixed with blue, pink mixed with cream, or even yellowish pink.

L. Cruckshankii has been found growing on the Peruvian Andes, near the edge of perpetual snow. It is considered by some authorities to be a variety of L. mutabilis. It flowers during July and grows 3 to 5 feet in height. The standard is a bluish purple, the middle of the flower deep yellow, and the wings blue or lilac. This species is remarkably handsome and I saw it growing to perfection during the early summer of 1923 in Mr. Musgrave's charming garden near Godalming, and again, later, in Mr. P. D. Williams' garden at Lanarth, near St. Keverne.

Lupinus species such as L. mutabilis and L. Cruckshankii may be raised from seeds sown in August or September. The seedlings should be kept in pots in a cold frame throughout the winter, ready for planting out in the spring. They will make splendid specimens during the summer if treated in this manner. *Robert W. Ascroft, East Molesey.*

NOTES FROM A WELSH GARDEN.

Grouped against dark-leaved evergreens some of the Forsythias are now very conspicuous objects in the open parts of the woodland, and I always think these shrubs are more effective and pleasing used in this way than when trained formally. The ordinary form of F. suspensa may be somewhat loose-habited and ungainly as an open-ground shrub, and for this method of treatment F. intermedia and F. viridissima are better, owing to their more upright and shapely manner of growth.

In spite of the harsh, easterly wind and continued frosts, Prunus cerasifera, vars. Pissardii and Moseri, were in bloom before the middle of March, and for some weeks the tree Heaths, E. lusitanica, E. Veitchii, and E. arborea have been hung with their countless little white or blush white flowers. Fortunately, these and E. australis escaped serious injury by breakage under the recent snowfall, this usually being the worst fate that ever befalls them in our winters.

That fine old flowering Currant, Ribes sanguineum superbum, will be a gorgeous spectacle before these lines are in print, and the white variety (alba) is in its own way scarcely less attractive under the shade of deciduous trees. R. speciosum is also an early bloomer, and the very fragrant R. aureum is a member of this genus that is by no means to be despised as a flowering shrub, to say nothing of its fine autumn colouring. Although we here in the west are apt to regard Viburnum Tinus with that contempt which is bred by familiarity, there is much to be said for this delightful old shrub in one or other of its superior forms. Its masses of rich, glossy green, and abundant cymes of creamy-white, pink-tinted flowers which it yields from mid-winter onwards are welcome enough when other flowers are few. Moreover, this accommodating shrub appears to prosper with the best of good will under almost any conditions.

There are few prettier bulbous plants in the woodland to-day than our little native Daffodil of the Welsh hillsides. These are scarcely taller than the Snowdrops, and in them the pale-yellow segments of the perianth lie flat upon the trumpet. They spread freely by seed and are invariably the earliest of their race to bloom. Bulbocodium vernum, with long-rayed flowers in a bright crimson-lilac and closely resembling some Colchicum of autumn, is blooming among dwarf Heaths. Scilla italica is beginning to show colour so that it will be ready to "carry-on" its race when S. bifolia and certain of the S. sibirica set have ceased to bloom. Leucojum Wagneri (vernum carpaticum) is increasing hardly less happily than the Snowdrops whose drifts of white annually grow more extensive across our Ivy-clad slopes, and not less vigorously, I may add, than the Muscari which every year crops-up in some quite unexpected place.

Primula rosea is showing its ruby buds by the water-side, where Lysichiton camtschatcense is unfurling its ebony spikes. P. Juliae, and one or two of its very robust offspring, have been in flower for some weeks in a cool spot in the rock garden. Here also is a little Violet of an orange-buff or nankeen-yellow colour, faintly lined with purple, evidently a form of V. odorata, but of its origin I know nothing beyond the fact that it came from Ireland. Of Anemone Hepatica and A. angulosa, delightful as they all are, the most attractive of the group to my mind is the form sent out, I think, by Mr. Clarence Elliott as A. a. lilacina grandiflora. This is a very robust form of A. angulosa, quite evergreen here, a most prolific bloomer, and the large flowers are a singularly lovely soft bluish-lilac. A. Pulsatilla is emerging from its woolly wrappings, but, except for the above and a few patches of A. blanda, this late season has little further in Anemones to offer us as yet.

Draba aizoides has adorned its weathered-looking mound of bronzy-green with mustard-yellow and Alyssum Moellendorfianum has enlivened its silvery foliage with flower clusters of the same tint. The latter is always the first of its kind to blossom here, just as the white-flowered, glaucous-leaved Aethionema iberideum is the first of the sister race to greet the spring. Gentiana acaulis (Gentianella), defying the night frosts, has had any quantity of its splendid trumpets open to the sun for a month past, and there is an equally brave show of colour on such vigorous Violas of the gracilis class as Lady Crisp and Perry's Yellow.

But if the season is exceptionally backward and flowers few, there is a refreshing note in the breaking foliage of deciduous shrubs. The Cotoneasters are especially early and delightful in this respect, the most unkind weather being unable to check their ardent vitality. C. horizontalis, in two or three forms, C. adpressa, and such of the taller kinds as C. bullata, C. Zabellii, C. Dielsiana, and C. hupehensis have been filmed for some weeks with a veil of delicate green which is very attractive. Even earlier than these to come to leaf is Eleagnus argentea which has foliage a bronzy-gold before it assumes the remarkably silvery hue for which this shrub is so noteworthy.

All the early-flowering Rhododendrons had their blossoms and half-opened buds destroyed by frost in the first week of March, but R. ciliatum, having been held back by the prevailing low temperature, is now showing its pretty pink and white blooms. R. racemosum has been preceded by the somewhat similar R. oleifolium and certain of the Jacksoni class are showing colour. *A. T. Johnson, Talycafn, N. Wales.*

NOTES FROM WISLEY.

Visitors to Wisley during the next few weeks will miss the well-known and picturesque bridge by which one crosses the Lily ponds at the foot of the rock garden. It has been taken down on account of the rotten state of the timbering and is being replaced by a stronger built bridge of Oak, but less rustic in appearance than its predecessor. The Wistaria sinensis which garlanded the old bridge has not been destroyed and will be used to drape the sides of the new bridge when the latter is in position.

Several kinds of bulbs are coming into flower in the rock garden, such as the sky-blue Hyacinthus azureus, Chionodoxa sardensis, Narcissus minor, and Galanthus caucasicus grandis. The two last plants make a quaint contrast since the flowers of Narcissus minor are as small, compared with an ordinary Daffodil, as those of the Galanthus are giants in comparison with a common Snowdrop.

Many of the mossy Saxifrages, particularly the larger hybrids have gone off badly owing to the cold and wet. Of the smaller kinds, however, a flourishing patch of S. hibernica is conspicuous by reason of the rich red-brown colour of its compact rosettes, heightened by the proximity of a silvery carpet of S. aizoon var. baldensis, while near the bog garden the bright red-margined leaves of some plants of Galax aphylla are also very noticeable.

Throughout the wild garden numerous plants of Helleborus orientalis are blooming. On an overcast day the dull, red-purple flowers may not appear very attractive, but when the sun is shining through them they become very much more interesting. In this wild garden the visitor is seldom unable to find hardy Cyclamen in flower between September and April. At the present time Cyclamen Coum and C. ibericum are in bloom.

In the alpine house some terrestrial Orchids collected by Mr. E. A. Bowles in Algeria are nearly in flower, and in their present stage bear a strong resemblance to our native Ophrys. A surprisingly graceful little hybrid of Primula Juliae, named Purple Splendour, is flowering in this house. The flowers are borne on slender stems and have an unusually small yellow eye.

Many varieties of Willow have been planted around the pond in "Seven Acres." These are now expanding their catkins, which are often very attractive and merit close examination. Those borne by the male plant of Salix gracilistyla have red stamens which become more and more evident week by week when viewed through the grey, silken hairs which protect them. The female form of this species does not appear to be in cultivation. Salix repens argentea which is a dwarf variety useful for spreading over the pond bank and Salix pruinosa are also noteworthy at this present stage.

In the adjoining Erica garden are some good forms of Erica carnea, one of the best of which is the bronze-leaved E. praecox rubra. In flower also are E. lusitanica and E. darleyonsis. *J. E. G. White.*

PLANTS NEW OR NOTEWORTHY.

LOTHIANIA, NOV. GEN.

Perigonium manifeste bilabiatum, cupula sepalorum et mentum nulla, sepala lateralia pedi gynostemii producto affixa, ecaudata, valde deflexa, labium inferius formantia, apicibus erectis, incurvis, sepalum dorsale labium superius formans, erectum, triangulum, ecaudatum, apice deflexum, cum lateralibus faucem hiantem, apertam efficiens. Petala in apices acutos vel filiformes producta. Labellum cuneato-flabellatum, unguiculatum cum tumore in ungue.—Planta habitu generali Masdevalliae, rhizoma repens, caules et folia paulum inter se distantes, pedunculi folia aequantes vel excedentes, uniflori.

L. **mordax** (Reichb. f.), Kraenzl.; Masdevallia mordax, Reichb. f., in *Flora*, lxix (1886), 559—Caespitosa radices crassiusculae, caules breves 1cm. longi. Folia satis longe petiolata, lanceolata vel oblonga, acuta cum petiolo canaliculato circ. 10cm. longa, ad 1,2 cm. lata, dorso carinata. Scapi uniflori quam folia subduplo longiores. Flores ut supra descripti, sepala in marginibus denticulata, in fauce muricata, 2–5 ad 2-8cm longa, casi 1cm. lata, lateralia dimidium usque fissa, omnia pallide lutea, rubro-striata et in apicbus inflexis rubra. Petala supra basin dilatata, in apices filiformes exeuntia. Labellum unguiculatum, cuneato-flabellatum, dentes laterates trianguli, majores, dens medianus minor cum tumore in basi.—Colombia. In civitate cauca prope oppidum Popayan, ubi detexit F. C. Lehmann.

Plants caespitose with long-stalked, lanceolate, rather thin, coriaceous leaves, and he general appearance of a Masdevallia. The flowers are widely opened like the gaping mouth of some animal, and justify the specific name given by Reichenbach, the more so that the borders of the large sepals bear small teeth. The colour is pale yellow with faint reddish stripes and deep reddish points. The petals and lip are very small as in all Masdevallia-like plants; the petals are provided with a linear point; the lip has three teeth and a small tumor at the base of the middle one. The plant is surely no Masdevallia but very near to this genus. The illustration (Fig. 70) is reproduced from a sketch by the late F. C. Lehmann, who detected the plant on the western declivities of the Munchique, near Popayán, Colombia.

I have named the genus in honour of the Marquis of Lothian of Newbattle Abbey. The princely liberality of his lordship provided the means for Miss Florence Woolward's well known *Monograph of Masdevallia*, that "*monumentum aere perennius.*" *Dr. Kraenzlin, Wolfenbüttel, Brunswick.*

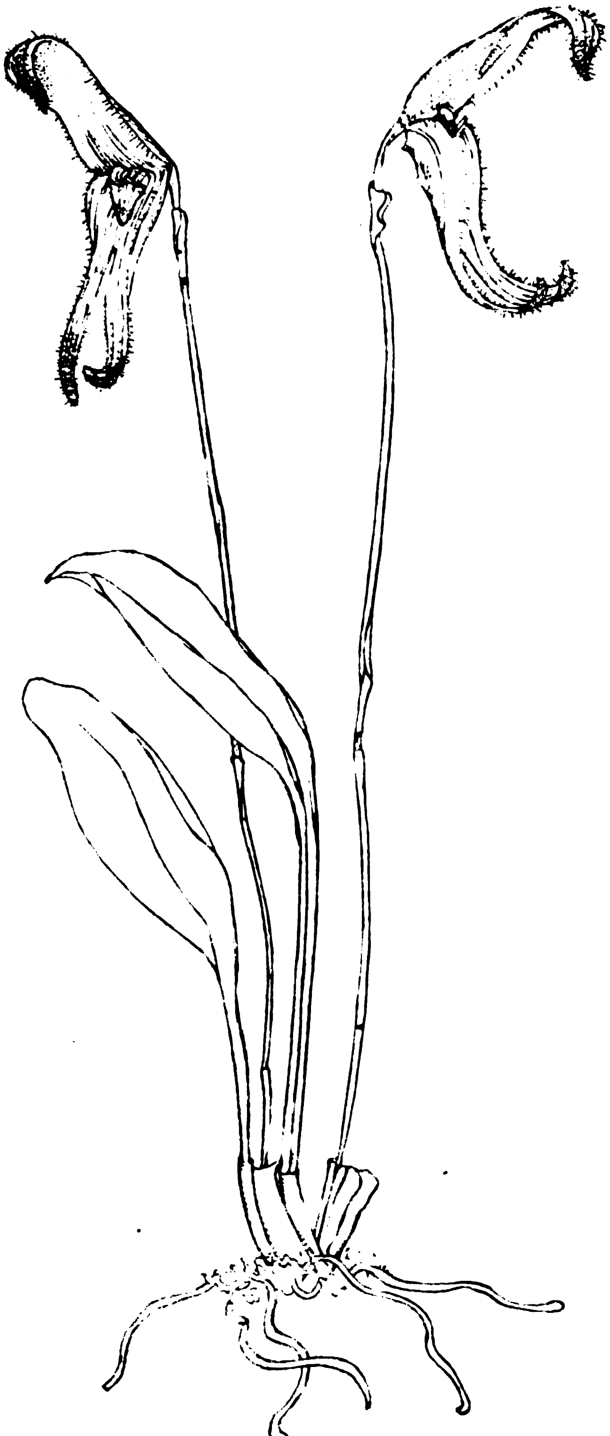


FIG. 70.—LOTHIANIA MORDAX, KRAENZL.

ORCHID NOTES AND GLEANINGS.

ODONTIODA WARDEN.

From the gardens of Clive Cookson, Esq., Nether Warden, Hexam, his gardener, Mr. W. J. Stables, sends a flower of a large and very beautiful Odontioda unique in its colour which is very difficult to describe, for the prevailing tint is made up of several colours which blend with charming effect. The ground colour is light coppery-orange with a pale violet glow over the surface. Small white markings are in the centre around the column and the sepals and petals have slight white margins and tips. The lip, which is broad and well formed, has a strongly defined yellow crest, in front of which is a large, ruby-red blotch, the margin being flaked with white.

This Odontioda was raised by crossing Odontioda Madeline var. Prince of Orange (Oda. Charlesworthii × Odm. crispum) and Odm. Phillipsianum (eximium × luteo-purpureum var. Vuylstekeanum). Thus the component ancestors are chiefly Odontoglossum crispum with O. Pescatorei, O. Harryanum, the yellow form of O. luteo-purpurem and Cochlioda Noezliana; the last named, although entering but once, in the first cross, dominates the colour with its suggestion of cinnabar-scarlet tint. The flower, which is as large and finely formed as the best Odontoglossum crispum, was taken from a spike of fourteen blooms, which must have been very handsome.

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

Miltonia.—Plants of Miltonia vexillaria, M. Bleuana, and others of this section, are in full growth, and from now onwards will require plenty of water at the roots. Many of the plants are developing flower spikes from the partly developed pseudo-bulbs, and at this stage every precaution must be taken against attacks of thrips, which, if not kept in check, will attack the tender flower buds, causing them to become deformed. The plants should be afforded plenty of fresh air at all times, and lightly syringed on bright, sunny mornings, well up under the foliage, to encourage growth, and assist in warding off insect pests. The spraying should be done sufficiently early in the day for the foliage to become dry before night arrives. The house should be fumigated mildly on frequent occasions with a reliable vapourising compound. The present is not a suitable time for re-potting these Miltonias, but small plants that were divided early last autumn, or others that have been grown in small pots and become pot-bound, may be carefully turned out of their receptacles and shifted on into pots of larger size.

Vanda.—After a long season of rest, Vanda teres and V. Miss Agnes Joaquim, have, with increased sunshine and more atmospheric moisture, commenced to grow afresh, and in order to cause them to flower freely, they should be placed in a position in the warm house where they may be exposed to all the sunshine available, and syringed frequently. V. teres will soon be showing flower spikes, and when the flowers are developed they should be protected from the sun, or they will soon lose their bright colourings. V. tricolor and V. suavis are growing freely, and should receive a little extra water at the roots. The plants will soon be developing flower spikes. These tall growing plants require to be carefully protected from strong sunshine at all times, or they will lose a number of their lower leaves. Every precaution should be taken against injury by drip from the roof, which is likely to cause an accumulation of moisture at the base of the leaves, resulting in decay.

THE FLOWER GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Specimen Plants.—Old plants of Fuchsias which have been wintered under cool and dry conditions should now be encouraged to develop fresh growth. These plants make splendid material for furnishing large vases and bowls on terraces, and in various positions in the flower garden. They need liberal treatment, and should be timed so that they are kept growing without becoming too pot bound, until they can be transferred to their permanent positions. Continue the pinching and training of Ivy-leaved and Zonal Pelargoniums to be used for similar purposes, and shift them into larger pots as requirements demand.

The Rock Garden.—Although spring growth has been delayed owing to the exceptionally cold season, the rock garden is full of interest, and renewed activity is evident among its occupants. The plants should be examined at frequent intervals, as such strong-growing subjects as Arabis, Aubrietias, and Cerastiums, spread very rapidly, and if not restricted, are liable to take full possession and cause losses among weaker subjects. Remove weeds before they rob other plants and keep the surface soil moved to encourage vigorous growth. The raising of plants from seed is a fascinating method of maintaining a stock of young and vigorous plants for furnishing the rock garden. Seed sown now and the resultant plants grown on in a cold frame, will produce valuable material for replenishments and additions during next autumn and winter.

Lawns.—Where top-dressings have been made and turf renovations carried out, lawns should be swept and rolled to ensure a clean surface for the mowers. In warm districts where the soil is light it will be necessary to make the first mowing.

Iris unguicularis (syn. **stylosa**).—Few plants are more valuable for winter flowering than this attractive Iris, which is now passing out of bloom. Where transplanting is necessary the roots should be lifted and replanted immediately, but this should only be done when undue crowding is apparent.

Hedges.—Evergreen hedges in good condition, which had their final trimming in late summer, will not need clipping now, but in the case of old hedges which have become bare and need hard cutting back the present is a suitable time to carry out the work. Remove all dead and faulty wood and cut the remainder back to the base of sound growths. When the pruning is done very severely the hedge should be syringed daily until new growth is active.

PLANTS UNDER GLASS.

By F. J. CLARK, Gardener to Lt.-Col. SIR GEORGE HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Chrysanthemums.—Plants that were raised from cuttings inserted during December and early January, and subsequently potted in a mixture of fibrous loam, leaf mould, decayed manure and a little fine charcoal and soot with sharp sand to render the mixture porous, should be kept growing sturdily, admitting air whenever the weather is suitable for ventilating. Those intended for growing as bush plants should have had the tops of their growth pinched out when the shoots were two or three inches tall, and stopping should be done again when the fresh growths have developed another three inches. A batch of Chrysanthemums in flower at Christmas and January is very valuable. In January of this year we had excellent late flowers from such varieties as Edith Cavell, chestnut-bronze; Framfield Glory, orange-yellow; Helena Williams, sulphur-yellow; Francis Pilan, yellow; Mme. Oberthur, white; Mrs. J. J. Thompson, white; Yellow Mrs. Thompson; Charm of Winter, white; Heston White, Framfield Pink and Admiral Gervasse, pink.

Gesnera zebrina.—This beautiful Gesneraceous plant and its varieties are valuable for the decoration of the greenhouse in mid-autumn and early winter. Plants having passed out of flower should be afforded a light position in a warm house, and they should receive attention in watering and feeding to enable them to build up their corms previous to resting them.

Plumbago rosea.—This is another beautiful autumn and winter flowering plant, and both this species and P. coccinea are worth growing in quantity for the special purpose of the decoration of dinner tables. Plants which were shortened after flowering should be rested in a dry position near the roof glass in a moderately warm house, and they will need but very little water. March is a suitable month in which to insert the cuttings, and shoots for the purpose may be obtained from old plants that were shaken out during February, cut back and re-potted in fresh open soil and grown in a warm, moist house. One-year-old plants may be grown on for another season's flowering.

HARDY FRUIT GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Insect Pests.—With the advent of warmer weather a close watch should be kept for all kinds of insects on opening buds and young foliage of fruit trees. Green fly will soon make its appearance, and prompt measures should be taken to keep it in check. A stock of suitable insecticides should be had in readiness for use, and on the first signs of infestation, recourse should be had to them as desired. The directions given by the makers should be strictly adhered to, remembering that two or three light applications are far better and safer than one drastic one.

Fruit Blossom.—Where trees are coming into bloom pay attention to the sheltering of them from frosts and cold winds, especially Apricots. The petals of Apricots are very fragile, and the bloom should be kept as dry as possible. Each flower should be pollinated by lightly touching it with a rabbit's tail or camel-hair brush. A little extra attention in this respect will well repay the cultivator. Do not fail to lower the blinds over the trees at night. The coverings should not be dispensed with directly the fruits have set, as the latter are very tender, and it is wise to protect them for a while, or at least, until the foliage does so more or less.

Trees on North Walls.—Trees growing on north walls, other than Morello Cherries, should be pruned and nailed by now. These fruits may always be left until last, as naturally they do not bloom so early as the others. Treat the borders as advised in a previous calendar and also cleanse the stems and branches of the trees if necessary.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Early Peaches.—Early permanent Peach trees have made sufficient growth to require attention with regard to training the shoots in position. Although there is no gain in hastening this work, care should be taken that the young growths required to furnish the tree for another season do not grow on the wrong side of the wires. The removal of surplus growths should be done gradually, as advised in the case of vines; the thinning of the fruit should be done carefully, until such time as one can be quite sure that the young fruits are swelling freely. With the increasing sun power see that the borders are well supplied with water. Close the house early in the afternoon, and syringe the trees freely with tepid rain water on all bright days. No time can be given as to when the house should be closed, as much will depend on the aspect; but I would advise growers to make use of sun-heat as much as possible, using only sufficient fire-heat to keep the atmosphere comparatively dry at nights.

Successional Peach House.—As the trees in the second early house are growing freely prompt attention should be given to disbudding. The shoots to be removed first are those on the under side of the old wood, subsequently taking out those on the top side, and the remaining growths at intervals until the whole of the shoots are reduced to one basal and one leading growth. This practice will not apply to young trees that have not filled their allotted position. Where the trees have failed to set fruits freely, great care will be needed not to reduce the crop by injuring any. A safer plan will be to pinch the young shoot at the second or third leaf. Close the house as advised for early Peaches.

Strawberries.—To insure a succession of ripe berries, a large batch of plants should be introduced to a cool house, from which frost is excluded. Much finer fruits may be obtained from plants grown under these conditions than those subjected to fire heat. With the lengthening days and the increasing sun heat, the plants will grow sturdier and a larger crop will be obtained. The early crop on plants started into growth in January, is now ripening. No manure of any description should be given when the fruit begins to colour, and less water is needed at the roots to insure the berries being of good flavour.

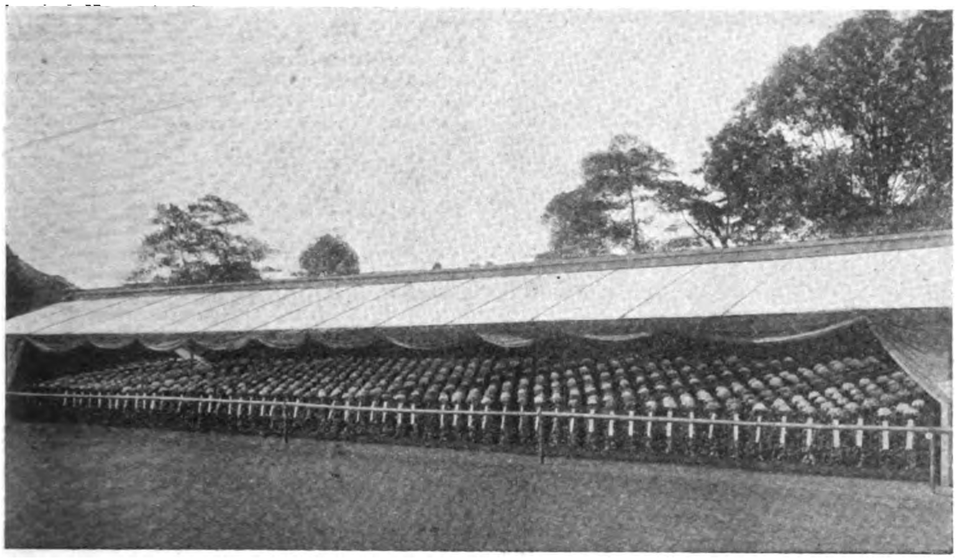


FIG. 71.—AN EXHIBIT AT THE CHRYSANTHEMUM SHOW HELD IN THE AKASAKA IMPERIAL PALACE, TOKYO (SEE P. 177)

THE KITCHEN GARDEN.

By **Walter Y. Staward**, Gardener to **Mrs. John Fenney**, **The Moat, Berkswell, Warwickshire.**

Beet.—A sowing of Egyptian Turnip-rooted Beet may be made on a south border. Spinach Beet should be cleared of dead leaves and the ground between the rows stirred to encourage new growth to develop.

Seakale.—Young thongs that were prepared some time ago and placed in ashes will now have a few prominent buds on each. As soon as the ground is suitable for working, the thongs should be planted in their growing quarters. Before planting them remove all the growths except two and in due time the plant will develop these prominently when the weaker one should be rubbed off. A suitable distance to plant Seakale is 18 inches between the rows and 8 inches between the thongs. Seakale seed may be sown now in rows made 3 inches deep.

Aubergines.—The fruit of the Egg plant makes a delicious vegetable and is very ornamental. Seed should be sown now and germinated in bottom heat, but as soon as the seedlings appear they should be placed on a shelf near the roof-glass to keep them sturdy. They are too tender to grow in the open except in a very warm corner; much the best results are obtained from plants grown in pots under glass.

Peas.—The earliest Peas will now need staking. Draw a quantity of soil up to each side of the rows before the stakes are inserted, and when the plants have been staked dust soot liberally along the rows; this material will help to check both slugs and sparrows. Another liberal sowing should be made for successional cropping. Advantage should be taken when the ground is too wet to cultivate it, to prepare plenty of Pea and Bean sticks of a size suitable for the different varieties.

ANNUALS FOR GREENHOUSE AND CONSERVATORY DECORATION.

CALCEOLARIA.

The genus Calceolaria includes two half-hardy annual species, viz., C. chelidonioides and C. mexicana, both of which are deserving of more general cultivation in the small, unheated greenhouse. Both have small, yellow flowers, and are quite easily grown in any ordinary potting compost.

The large-flowered greenhouse varieties are treated as biennials, but for the present purpose may be regarded as annuals. The seed is best sown during July, and the soil in the seed pans should be watered some hours before sowing the very fine seed on the surface. Place a piece of glass over the seed pan and keep it shaded until germination takes place. When the young seedlings are fit to handle they should be pricked off into pans or boxes of light, rich soil.

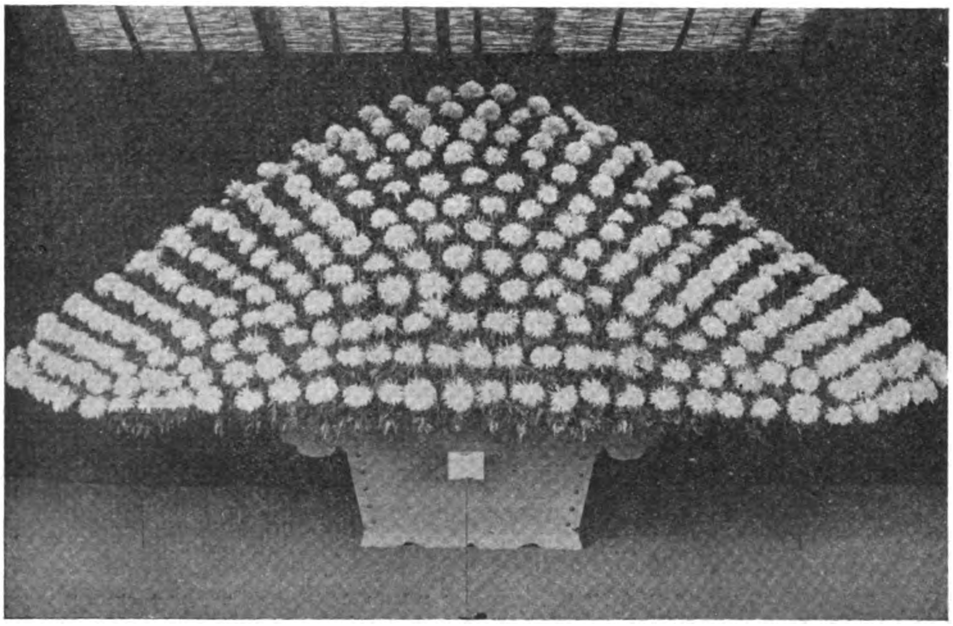


FIG. 72.—SPECIMEN CHRYSANTHEMUM WITH EIGHT HUNDRED FLOWERS, TRAINED TO REPRESENT MT. FUJI (SEE P. 177).

This type of Calceolaria requires perfectly cool treatment, with plenty of atmospheric moisture at all times. Cool, low-roofed pits are the best places for their cultivation, and while really good specimens may be grown in eight-inch or nine-inch pots, excellent examples may be grown in six-inch or seven-inch pots. The potting compost should be light and rich. Old Mushroom-bed manure and dried cow manure are excellent materials to mix with the compost.

Calceolarias are very subject to attacks of green fly and should therefore be subjected to frequent light fumigations.

There are several strains of Calceolarias with smaller flowers than those of the best "herbaceous" strain; they are very decorative and succeed under the same treatment as that advised for the large-flowered varieties.

C. corymbosa, seed of which is sold under the name of C. Fairy Queen, is a beautiful annual species, with deep, yellow flowers, and was introduced from Chili in 1822. It is no doubt one of the progenitors of the present day garden Calceolarias. This beautiful species is worthy of cultivation, succeeding as it does under the same cool treatment needed by the large-flowered section.

The beautiful hybrids between C. cana and the large-flowered varieties, are also deserving of more general cultivation, especially by those who are keen lovers of plants, as the small flowers, spotted and marked in various colours, are very quaint and beautiful.

CALENDULA OFFICINALIS.

This common, hardy annual is not generally regarded as worthy of attention for pot cultivation, nevertheless, it is very useful for this purpose, especially for autumn flowering, the bright yellow and orange-coloured flowers being very useful in the conservatory.

They grow freely in any ordinary soil, but for pot cultivation it is best to use a fairly heavy loam, making it firm in the pots; the resulting growth is then more sturdy and floriferous than when a light, loose compost is used. For autumn flowering seeds should be sown towards the end of June, and the seed boxes placed in a cold frame. When large enough to handle, the young seedlings should be placed singly in small pots and subsequently potted on as they require it, until they are in six-inch pots, which is a useful size for flowering them in. The plants may at all stages be grown in cold frames.

J. Coutts.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

A NEW COLLECTOR OF CHINESE PLANTS.

THE name of a new collector has now to be added to the list of those to whom we are indebted for the introduction of plants from China. It is that of M. Hers, Administrator of the Lung Hai and Pien Lo Railways—an undertaking that will, in a few years time, enable tourists to reach the north-western zones of China in safety and comfort, thus opening up a region only accessible nowadays after a long and strenuous journey. M. Hers is an able and highly educated Belgian who settled in China many years ago. He is keenly interested in dendrology, and all his spare time, as well as part of his business time, is spent in the study of the Chinese native sylva. The matter is of particular interest to the railway authorities, which are concerned with the plantations on railway banks, around stations, track logs, etc., consequently his Company assists him in every way in his endeavours. M. Hers collects seeds whenever possible, and sends parcels of the rarest species to many scientific establishments in Europe and elsewhere, and especially to the botanical department of Messrs. Vilmorin Andrieux and Co., at Verrieres—who have undertaken the task of distributing them in France—and to Kew, Dried herbarium specimens are sent to the Arnold Arboretum, which institution has agreed to determine them. So far, over two thousand species, old or new, have been collected, and seeds of several hundreds have reached European correspondents. These seeds have been collected in the provinces of Honan, Kiangsu, Shensi, and Kansu.

Amongst the most interesting subjects thus introduced are: Picea Wilsoni, Pteroceltis Tatarinowi, Celtis koraiensis, Betula albo-sinensis, Carpinus Fargesiana, Zelkova sinica, Acer Hersii, Quercus Baroni, Albizzia kalkora, Cornus poliophylla, Larix dahurica var. Principis Rupprechtii, Corylus Sieboldiana var. mandshurica, and Cornus Bretschneideri. Hardy forms of Sapium sebiferum, Sterculia platanifolia and Liquidambar formosana, harvested in the most northern points of their habitat, have also been sent. M. Dode, the well-known French author who specialises in Salix and Populus, has received numerous cuttings of species of these genera.

M. Hers has already published a number of interesting notes on the trees and shrubs of China, and probably the most interesting are in a neat booklet entitled *List of Ligneous Species Observed in Northern Honan*, which is a reprint of an article contributed by him last year to the *Journal* of the North China Branch of the Royal Asiatic Society (Vol. liii). This booklet, nicely printed, gives in alphabetical order the names of all species and varieties M. Hers has found. To every botanical name is added, besides the authority, the Chinese name. The latter has not been easy to secure, as the Chinese have a tendency to give different names in different districts or to give the same name to plants differing widely in botanical relationship. These names are given both in Chinese writing and in Roman characters.

The list includes nearly four hundred species and varieties belonging to one hundred and sixty-six genera. The genera most richly represented are: Acer, twelve species; Benzoin, five species; Carpinus, five species; Cotoneaster, five species; Euonymus, eleven species; Lespedeza, six species; Lonicera, seven species; Populus, five species; Prunus, ten species; Quercus, nine species; Rhamnus, seven species; Rosa, eight species; Salix, nine species; Syringa, seven species; Tilia, five species; and Ulmus, six species. Amongst species rare in Europe, or particularly interesting, and found in Honan by M. Hers, are: Acer Francheti, Cladrastis Wilsoni, Evodia Henryi, Magnolia aulacosperma, Mahonia Fargesii, Malus hanonensis, Paulownia Duclouxii, Syringa affinis, Tilia Henryana, Ulmus Wilsoniana and Viburnum shensianum.

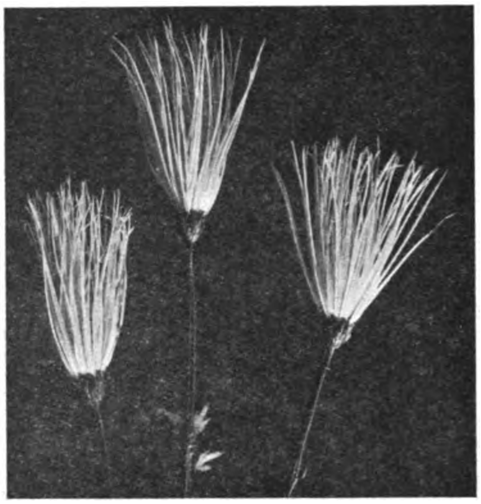


FIG. 73.—SAGA-GIKU, BRUSH-FLOWERED CHRYSANTHEMUM (SEE P. 177).

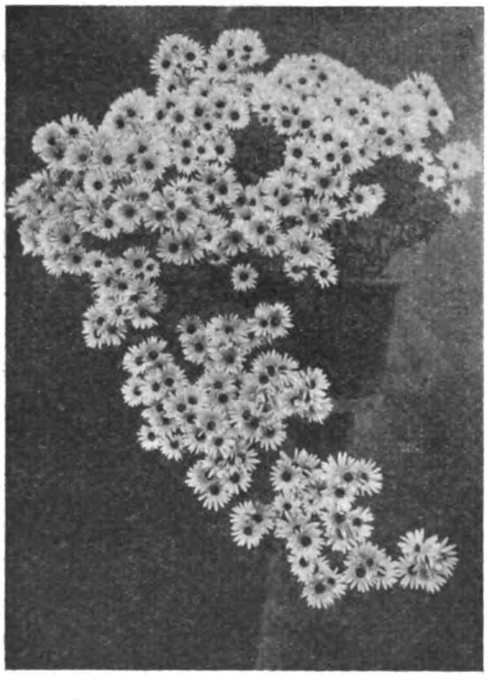


FIG. 74.—SAN-GIKU, MOUNTAIN CHRYSANTHEMUM IN CASCADE FORM (SEE P. 177).

M. Hers points out that Honan had formerly a well-known flora. Old publications like the *Kiu Kiuang Pen Tsao*, published in the fourteenth century, and the *Shuo Sung*, published in 1716, give complete descriptions of the plants then known; apparently these were a great deal more numerous than now, especially as regards ligneous species. Recent collectors do not seem to have troubled at all about Honan. The surroundings of the roads, fairly numerous, that cross this province in the south are so bare looking, states M. Hers, that no botanist ever thinks of examining them. The northern mountainous part of Honan, however, situated between 33° 30′ and 35° 30′ of north latitude and about 5,000 feet about sea level, is quite interesting. Particularly rich, vegetatively, are the ranges of the Fiu Niu Shan and of the Tien Tai Shan.

A very interesting endeavour of M. Hers, commenced a few years ago was, unfortunately, a failure. He tried to establish at Chengchow an arboretum where all trees and shrubs collected by him during his travels would be assembled. The difference of climate, however, proved too great for the majority of these plants. Pines, for instance, could not withstand the hot, dry atmosphere of the low-lying district, neither could many Oaks, Maples, and other subjects; the undertaking, therefore, was discontinued after a few years. M. Hers is pursuing his activities in the provinces of Kiangsu, Shensi and Kansu, and, besides sending seeds collected there, is preparing lists of the ligneous plants found in those provinces; these seeds and publications will certainly receive a hearty welcome from all interested in dendrology. *C. L., Paris.*

NEW NITROGENOUS FERTILIZERS OF GREAT BRITAIN.

SIR JOHN RUSSELL, in an article entitled "The New Nitrogenous Fertilizers of Great Britain," contributed to *The International Review of the Science and Practice of Agriculture, Vol.* 1, *No.* 4, outlines the uses of the comparatively new nitrogenous fertilizers nitrate of lime, nitrate of ammonia, urea, ammonium chloride and cyanamide. The first named substance has been tested at a large numbers of centres and has proved as effective as nitrate of soda, but, like this material, it has the disadvantage that it is apt to turn sticky in a moist atmosphere and must be conveyed in casks, a fact which necessarily adds to the cost of transport. As, however, it contains calcium in place of sodium it does not impair the texture of heavy soil as is often the case with nitrate of soda, and moreover it is of value for using on soils deficient in lime. Nitrate of ammonia is one of the most concentrated nitrogenous manures on the market, and when pure contains 35% of nitrogen, equivalent to 42½% of ammonia. About half the nitrogen in the form of nitrate is immediately available for the requirements of the plants, the other half in the form of ammonia comes into action somewhat late. It is very suitable for general crops and is perhaps the quickest acting top-dressing known being even more soluble than nitrate of soda, and at the same time as part of the nitrogen is in the form of ammonia, it is not so liable to leach away if the weather is wet. It should be applied in showery weather as it is likely to burn the foliage of plants should the weather be hot and dry at the time of its application.

Urea, by reason of its containing 37% of nitrogen, has a great advantage wherever transport is an important consideration and the freedom from secondary injurious effects renders it a very desirable fertilizer. With regard to ammonium chloride it is difficult at present to say what future lies before it. Apparently it possesses one serious disadvantage in that it appears to increase the risk of loss by drainage, and when its various effects on the soil and the plant have been better known it will be possible to set out the conditions under which it can be used to the maximum advantage. Cyanamide is briefly referred to by the author who states that its direct action as a fertilizer is not so good as that of the aforesaid substances, and that it may be fairly readily converted by the manufacturer into one or other of them.

CHRYSANTHEMUMS IN JAPAN.

Because of its association with the Royal Family for nine hundred years the Chrysanthemum is regarded with special interest and veneration in the island kingdom of Japan. Year by year during that long period there has been an annual celebration of the Chrysanthemum, and this has always been directly associated with the Royal Family itself. In the ordinary way when the term Chrysanthemum is used without qualification the Japanese invariably refer to autumn-flowering varieties.

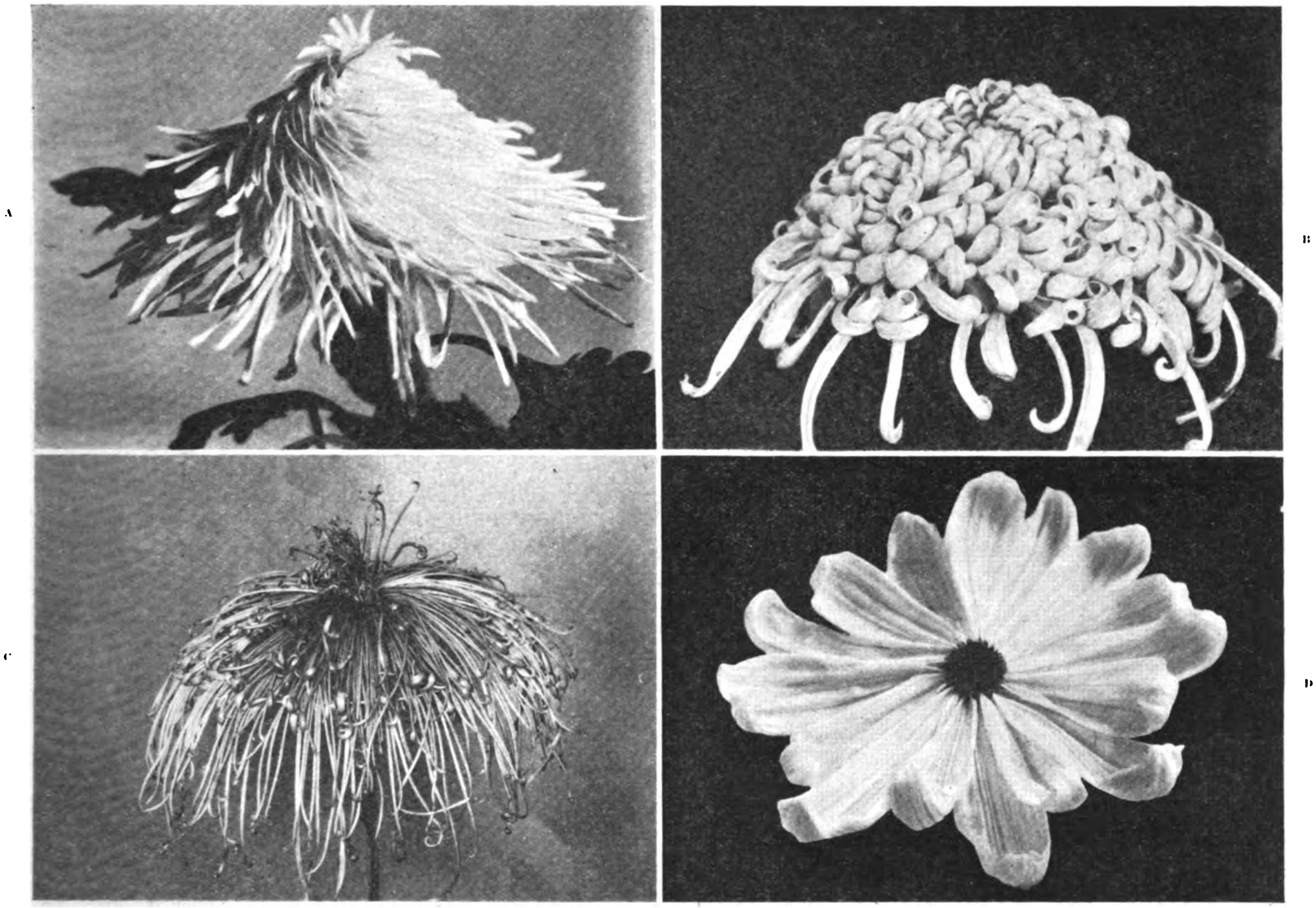


FIG. 75.—TYPES OF CHRYSANTHEMUMS IN JAPAN.
A. Kurui-giku, Mobile-petalled Chrysanthemum; B. Oh-giku, Large Chrysanthemum; C. Hosokuda-giku, Thread-petalled Chrysanthemum; D. Hironoshi-giku; broad-petalled Chrysanthemum.

It will be understood, however, that with such a long history and so great a popularity, immense numbers of varieties have been raised in Japan. Those in cultivation are grouped in certain sections and these sections are sub-divided into groups which are again broken up into very many sub-divisions. According to the usual method, the Chrysanthemums of Japan are classified in three great sections—Macroflorae, Medioflorae and Microflorae.

The first section includes flowers of large size, single or double, from eight to twenty-five inches in diameter, and with leaves from three to seven inches long. The main groups of the large-flowered section are (1) Oh-giku, or large Chrysanthemum (Fig. 75, B); (2) Hosokuda-giku, or thread-petalled Chrysanthemum (Fig. 75, C); (3) Hironoshi-giku or broad-petalled Chrysanthemum. This last group includes the sixteen-petalled Chrysanthemum (Fig. 75, D), which is the crest of the Imperial family of Japan, and it has no fewer than sixteen sub-divisions, each of which is descriptive of the form and style of the florets.

In section II. the main groups are (1) Chu-giku (Fig. 75, A), also known as the Kurui-giku, the medium Chrysanthemum or mobile-petalled Chrysanthemum; these varieties have tubular, quilled and flat petals, counting from circumference to centre; the petals gradually fold down in some definite form in about ten days, *i.e.*, clock-wise, counter clock-wise, etc. (2) Higo-giku; the varieties in this group have been cultivated chiefly in the province of Higo of Kyushu; (3) Choji-giku, or Anemone-flowered Chrysanthemum; (4) Saga-giku (Fig. 73); the varieties in this group are said to have originated in Saga, near Kyoto, the old capital of Japan, and are still grown by some aristocratic people there. The varieties in group four have flowers in which the florets stretch out horizontally when they first open, then gradually stand up more or less erect in the course of about one week, and look very like paint brushes as the petals are very narrow; (5) Ise-giku, named after a province in the central part of Japan.

In section III, consisting of smaller-flowered varieties, the main groups are (1) Ko-giku, small Chrysanthemum; (2) San-giku or Mountain Chrysanthemum (Fig. 74); (3) Nanako-giku, Pompon Chrysanthemum; the varieties in this section are often trained to represent a human figure on a stage and this method of cultivation and training originated about one hundred and twenty years ago in Yedo—Tokyo of to-day; (4) Azamia-giku, or Thistle Chrysanthemum.

The popularity of the Chrysanthemum in Japan is unquestioned. The flower has been improved in different respects in different parts of Japan, in accordance with the taste of the people, consequently, some of the groups or sections are named after the locality in which they have been chiefly grown. There are numerous Chrysanthemum Societies in Japan, each of which specialises in varieties of a certain group or sub-division. Both by cultivation and the raising of seedlings each Society endeavours to improve the special class in which it is interested. The strictest possible regulations are enforced, especially in connection with the standards of judging.

It is impossible to state what particular kind of Chrysanthemum is more popular than another throughout Japan, as people very greatly respect old methods of cultivation which attach to a special locality and notably the varieties originated by their ancestors. Possibly, however, Oh-giku and Hosokuda-giku are becoming particularly popular, because of the magnificent display the flowers make at exhibitions, and they are particularly welcomed in large cities like those of Tokyo, Kyoto and others. The San-giku finds favour by reason of its neatness and the ease with which it may be cultivated. What is known as the Cascade form of San-giku is particularly suitable for room decoration in Japanese houses.

Not only Chrysanthemums but many other flowers are cultivated by every Japanese family. All the Japanese people love flowers, but at the same time they do not necessarily grow the flowers for the flowers' sake, but for the pleasure which cultivation affords. They delight in cultivation, consequently mere size in a flower which is valued at a flower show is by no means generally approved by cultivators. Of such a flower the bulk of the enthusiasts would say—"It is magnificent; it is large enough to win a prize at a show, but size does not always mean beauty." The Japanese love to have flowers which harmonise with the surroundings, therefore a very large number value the smaller-sized Chu-giku and thoroughly enjoy the daily change shown by the automatic motion of the petals. Others take special delight in the quietness and neatness of Saga-giku, which suggests great refinement. A Cascade-trained San-giku (Fig. 74) in a small pot on Toko-no-ma (the special decorative part in a Japanese room), with a basketful of flowers and Kakemono (Japanese hanging pictures), is sufficient to give pleasure to any Japanese.

Trained plants of the large varieties of Chrysanthemums as carried out by certain specialists are not generally popular. The Japanese consider the Chrysanthemum plant as a whole, but it is not greatly praised unless it has suitable and abundant foliage as well as flowers true to type. In the United States of America and in some parts of Europe, people are very keen on the colour of the Chrysanthemum and generally use flowers in massive decorations. In Japan the people pay more attention to the form of the flower, the length, curvature and shape of the petals and guard petals. Their interest is so keen that no detail of the flower is too small for their consideration. Indeed, it would be very difficult for me to explain to a European this extreme keenness of interest. I think the old family system of Japan must be responsible for this result. A whole family may possess the same taste, the same love of ornamental plants, and generation after generation will take the same amount of care in their cultivation and obtain the same amount of enjoyment from them; but being taught how to grow and observe them from childhood they become very critical, and living with their flowers day by day their observations go further into details than is usually the case. For instance, the cultivation of the plant in a dwarf form in a pot is only done successfully by the continuous care of those whose families have long been associated with that particular method.

It may be pointed out that there are edible (Ryori-giku) as well as ornamental Chrysanthemums in Japan; the former usually have yellow, fragrant petals which are used in cooking, but, of course, the ornamental sorts form by far the most important group. There are also multiple-flowered sorts of the Hen-and-Chicken type.

At the great Chrysanthemum festival wonderful displays are made in the Imperial Garden. In addition to thousands of plants grown with a single stem and one flower there are huge trained plants. Some of the large-flowered varieties may be thirteen feet high, with blooms from ten inches to nineteen inches in diameter. Others, trained to represent the famous Mt. Fuji (Fig. 72) may carry so many as a thousand flowers, each eight inches wide, and the specimen may measure up to eighteen feet wide, ten feet high and twelve feet through. These Chrysanthemums are displayed under a roof of oil-painted paper, surrounded by a fine Bamboo screen and draping of heavy crepe silk. In Fig. 71 each diagonal line represents one variety of Chrysanthemum with a card on the foremost plant carrying the varietal name. The name of a new variety is given by the members of the Bureau of Poetry in the Imperial Court.—*Teizo Niwa, Prof., Imperial College, Tokyo.*

IRRIGATION IN ITALY.

NOT long since I spent a holiday in Milan, and was asked by an old friend—who had resided in England for thirty years, and had extensively farmed during that time—to visit his estate situated in one of the most favoured spots for a certain system of farming.

An idea of the fertility of his land may be gathered from the statement that the home farm of about 450 acres, which is under my friend's personal management, carries and supports, with a yearly expenditure of £60 on artificial food, 170 milch cows (Swiss breed), 50 heifers, 24 working horses and 28 yearlings, besides producing on one-third of the land, for the purpose of rotation, Wheat, Maize, Rice, Cabbage and other fodder crops.

At any period of the year the land can be irrigated every ten days, and by centuries of work has been brought to such a level that on no part of the land can the depth of water be more than one inch; all parts of the land are uniformily irrigated. By this method of irrigation six cuts of grass may be obtained, and besides the grass stall-fed to the cattle, 900 tons of hay have been produced, the hay consisting mostly of the crop following the first cutting of Italian Clover, which is indigenous and grows luxuriantly.

From one pertica of land (which is equal to 660 square metres), a yearly yield of 8/900 kilos of hay, 250 kilos of Wheat, 40 kilos of Maize and 4½ kilos of Rice is obtained—the rent of such land being 120 lire per pertica, which at the rate of exchange of 100 lire to the £ is 24s. The marvellous growth of vegetation is shown by the fact that after Wheat is cut in June or the beginning of July two good crops of hay are obtained, and when too late for more hay there is an abundant crop to be fed off.

The estate is in that part of the country where water meadows were first instituted 500 to 600 years ago by the monks, who found that the water of many springs was much warmer than the atmosphere, and by running the water over the land, found that vegetation was greatly encouraged during even cold spells. The water meadows are the most perfect in the world. It must not be considered that the climate at any time is tropical—it is as hot as in any part of Europe, but the winters are cold, in so much that skating is enjoyed. What surprised me is that my friend should ever have thought of improving the bountiful production of the land by introducing a new system and cultivating vines and such fruits as Apples, Pears, Peaches, Cherries, etc., but such is the success obtained that the estate is being constantly visited by the principal growers in Italy and by horticultural students.

I have seen a portion of a Phylloxera-proof vine grafted on to a table Grape vine, put in the soil in March, with the shoot four yards in height in September. This will be replanted this winter and next season will certainly produce Grapes. Pears, Apples and Cherries grafted in the previous August shewed in September of the year following stems of about three yards high and three-quarter inch in circumference. Peaches that were kernels in March, 1922, and grafted in the following September were over nine feet high with stems one-and-a-half inches in diameter. There were Pear trees two years after grafting, carrying ten to fourteen Pears of over half-pound weight each. The cultivation of fruit trees has been carried out on a large scale, so that my friend can place Pear and Apple trees on the market at 6d. each, and vines and Peach trees at 5d. each! To an Englishman accustomed to the slow development of these trees in our own climate the growth obtained seems incredible.

A considerable acreage is devoted to horticulture. For instance, I saw a field of Zinnias a mass of bloom, the flowers being six inches in diameter and the range of colours marvellous. It was a revelation to one accustomed to the Cockscomb as grown in England, to see plants hardly two feet high with "combs" sixteen inches long and correspondingly broad, perfect in shape, whilst the colours were of greatly varied shade. Balsams grown by the acre were a glorious sight, and though it was late in the season, I could see from the appearance of the numerous borders devoted to perennials and annuals, still a mass of bloom, the success that had attended the cultivation of all the favourite flowers of our English gardens. It was quite commonplace to find row after row of Sweet Peas with five blooms on each stem. Cannas also grow profusely with leaves and flowers of a size and colour far beyond those grown under the English climate. Great attention is also given to the cultivation of Tuberoses on a very large scale; my friend was good enough to have several plants dug up and the tubers measured 16 cm. in circumference.

Equally satisfactory results were found in the vegetable gardens, and it is interesting to know that most of the flower and vegetable seeds were procured from a well-known English firm.

I am sure my friend would be only too pleased to receive a visit from anyone interested, and the Editor would give my friend's name and address to anyone visiting Italy and desiring to see the results obtained under the Italian climate, in a most adaptable soil, and with the most perfect system of irrigation. *C. H. G.*

INDOOR PLANTS.

TRADESCANTIA FLUMINENSIS VITTATA.

IN a variety of forms Tradescantia fluminensis seems to have been masquerading in greenhouses at both ends of Britain, though perhaps not one gardener in a hundred could give any other name than Tradescantia. It is recorded as having been introduced from Brazil in 1905, but this must be due to a second introduction. In the early eighties of last century a form was grown under the name of T. multicolor, this being given because of the varying amount of white variegation of the leaves. Since then another variety has been evolved in which the leaves are banded with green and white, tinted with pink or red.

This form of Tradescantia fluminensis is being propagated and distributed in the markets and florists' shops by market gardeners, and occasionally it finds its way into large as well as small gardens, but usually with no other name than Tradescantia. Both these variegated forms frequently revert to the green state, and in that condition it must have been grown for many years in gardens, previous to the new record. Its popularity is due to the ease with which it may be cultivated in any part of a greenhouse, whether above or under the stages. The striped variety (T. f. vittata) has smaller leaves than the green one, owing to the variegation, and makes a handsome basket plant. *J. F.*

BULB GARDEN.

HYBRID WATSONIAS.

After reading in your issue of January 26 Mr. Warner's interesting article on the Melbourne hybrid Watsonias, it occurred to me that perhaps some of your readers might care to learn of Mrs. J. H. Bullard's splendid work with this fine race of bulbous plants. She has raised varieties with flowers ranging from white through cream, many shades of pink, mauve and salmon, to light scarlet. She has distributed altogether thirty-three distinct varieties and these are being put on the market by Mr. Robert Kessler, of Los Angeles. *Wm. Campbell, Waverley Nurseries, Johannesburg.*

TREES AND SHRUBS.

CYTISUS MONSPESSULANUS.

The earliest of the Brooms to come into flower here is Cytisus monspessulanus (candicans), its short racemes of bright yellow flowers often appearing among the narrow leafage in February, though the shrubs are not usually in full bloom until April. Though generally considered tender, we have found this Broom perfectly hardy, enduring 20° of frost without injury. It is an admirable subject for grouping in bold masses which affords the shrubs mutual support for, being tall (six feet), slender and leafy, isolated specimens are liable to get loose at the root.

C. monspessulanus is a native of Southern Europe, the Far East, northern Africa and parts of Asia. It has long been in cultivation in this country and is not uncommon in the western counties. Its reputation for tenderness may perhaps have prevented it from becoming more popular, but we find our plants so hardy that it is just possible there may be certain forms in cultivation which are more reliable than others. This seems the more probable when one realises the very wide extent of its natural range. C. monspessulanus is as long-lived as most of its genus, but old plants get somewhat leggy and do not blossom so freely as young stock. The latter is easily raised from seed (which is produced abundantly) sown in the open ground in summer, and the growth of the seedlings is so rapid that the flowering stage may be attained in two or three years. In habit, foliage and general appearance C. monspessulanus is more akin to Genista fragrans (C. racemosus) than any of the hardy Brooms. *N. Wales.*

SOME FRAGRANT WINTER-FLOWERING SHRUBS,

During the dull winter months when flowers are scarce, it seems almost impossible to value sufficiently such useful subjects as Chimonanthus fragrans, Lonicera Standishii and L. fragrantissima. These highly fragrant shrubs may be grown satisfactorily in the open, and in most soils, provided the same is well drained, in all but the very bleak parts of the country; though if a S., S.E. or S.W. wall can be spared to grow them against much better results will be obtained. Flowering as they do from November to February, the shelter of the wall proves advantageous. It is surprising how much space is seen in many gardens which could be utilised for growing attractive shrubs. Very often plants or bushes of Chimonathus fragrans produce many long, soft shoots, which do not flower. This difficulty may be overcome by lifting or root-pruning the specimen. The operation should be carried out in the same manner as in root-pruning an Apple or Pear tree, and when re-placing the soil a small amount of lime rubble and bone meal should be added. Prune the shoots after flowering to about three or four eyes so as to promote the growth of short-jointed, well-ripened wood, which will produce an abundance of fragrant flowers. *R. H. C.*

SYMPLOCOS PANICULATA.

Symplocos paniculata, recently described in *The Gardeners' Chronicle* as a shrub or tree-like shrub, appears to me to be a plant capable of adapting itself to environment by assuming what perhaps may be considered three distinct habits of growth. In the Pine forests in this district where it is fairly plentiful, it attains a height of 30 feet to 35 feet, with trunks of 4 feet to 4½ feet in circumference at ground level and usually non-branching up to a height of 6 feet, and as thus, may be described as a small tree.

On the outskirts of the forests and in the more exposed positions where it seldom attains a height of 20 feet, it is met with as a tree-like shrub with spreading branches and, again, we find it here in gardens, where by annual pruning, it sends out strong shoots with leaves and flowers considerably larger in size, assuming more of the habit of a shrub.

In the plant's natural habitat, other instances have come under my notice, where the same species may in some places be found growing as a shrub, and in other places as a climber or climbing shrub or perhaps a small tree, or even growing as an epiphyte, and when such plants have perhaps been known to us for many years as shrubs only, their identification, when first met with assuming a different habit of growth, is often impossible without close examination.

Under cultivation I have noticed that the tendency of these plants is to assume the habit of a shrub. The factors which are instrumental in bringing about these changes of habit is surely one of the most interesting studies in plant life. *L. Ruse, Mayville, Shillong, Assam.*

INDOOR FRUITS.

PEACHES AND NECTARINES.

By the time this note appears in print the trees in the cool Peach and Nectarine houses will be opening their flowers very rapidly. With an abundance of pollen, notwithstanding the cold weather of late, with continued frost, there should be no difficulty in getting a good set of fruits this year, owing to the lateness of the season and the sunny days favouring the bees, which are very busy amongst the flowers.

We heard many complaints last year about the scarceness of pollen; many put it down to the unripe wood, and this was so in many places where the houses are more or less shaded by trees, which prevent the autumn sun from reaching the Peaches and Nectarines.

Trees that had fairly well ripened wood failed to set fruits, and it was thought that the scarcity of pollen was the cause, which may be true, but it may not always be the trouble. I have seen young assistants engaged in the work of pollinating the flowers, and the question arises have they sufficient knowledge to discriminate when the flowers are ready for pollination.

I always consider that it is time well spent in pollinating by an experienced hand who knows when the flowers are ready. A careful workman with a syringe may do a great deal of good in the middle of the day when the sun is shining by syringing the trees lightly when the pollen is ready for distribution; this will save time when other work is pressing. Tapping the trees with the hand also does much towards securing a good set of fruits, but for certainty, next to the bees, a rabbit's tail should be used to ensure pollination. *Grower.*

CHERRIES.

Cherry trees in cool houses are developing much later than usual this season and, provided the bloom is not already expanded, the trees may be sprayed with a nicotine insecticide to keep black aphis in check. When the trees are in bloom shade them from the direct rays of the sun by spreading a little whitening over the roof glass. *P.*

HARDY FRUIT GARDEN.

LARGE APPLES.

The following remarks may prove of interest to those desirous of obtaining very large Apples.

Assuming the trees are established, they should receive a winter mulching of well-rotted stable or farmyard manure, say about an inch thick. After the period of the setting of the fruit, each tree should have about one pound of fish manure applied to the surrounding soil, lightly forking the whole in the surface.

Thin the clusters of fruits that set, retaining those facing the light; those on the north side and those growing on the inner parts of the tree may be removed.

The number of fruits on each truss should be restricted to two. The centre Apple on each truss may be taken away, as often these centre fruits commence to swell freely, then crack through an exuberance of sap, thus rendering them useless for exhibition or any other purpose.

The side fruits will develop to an immense size, with perfect contour and long keeping properties. To assist increase of size, take a strand of wide raffia and similar to the method of slinging the fruits of Melons, suspend the fruits with a loop when they are about the size of hen's eggs. This will assist the fruits to swell by easing their weight from the branch and the fruit stalk. Having practised this method and made observations of its effects for nearly thirty years, I can thoroughly recommend it.

The roots should be watered with weak liquid manure twice during the season, viz., directly after the first thinning of the crop and six weeks later, adding one part of nitrate of soda to four gallons of the manure water. Summer pruning must receive attention in the cases of espalier, cordon, and bush-trained trees.

The following sorts produce the largest Apples; some are in season early, others at mid-season and some are late sorts.

Withington Fillbasket, a large and very handsome fruit, coloured yellowish green, with red markings. Season, October.

Gloria Mundi, a large Apple of a yellowish-green colour, with a slight flush on the side next to the sun. Season, December. Specimens of this Apple have been known to turn the scales at two pounds.

Glory of England is an enlarged Emperor Alexander. The fruits are about four inches wide and nearly three inches tall. The skin is greenish-yellow, with shades of deep yellow, and streaks and dots of crimson on the side next to the sun. Season, January.

Gloucestershire Costard. The fruits of this Apple are very large; it is a desirable cooking variety of handsome appearance. The tinting of the skin is most beautiful; it is covered with crimson streaks, mottled with shades of yellow, and the surface strewed with minute dots. Season, January.

Norfolk Beauty is not so well known as this excellent variety deserves to be. It is a handsome, well-shaped Apple, with a golden appearance. The fruit is very large, resembling a well-shaped Warner's King. It is a splendid variety for orchard cultivation. Season, December. Warner's King is a variety so well known as to need no description from me. By thinning the clusters to one fruit and allowing it to remain on the west aspect, very heavy fruits are obtained. Bramley's Seedling gives the heaviest specimens on half standard and bush trees. This Apple is a gross feeder and requires summer pruning.

Rev. W. Wilks is a giant amongst Apples and one of the most precocious varieties in cultivation. Good crops are obtained from cordon, bush and espalier trees. The colour is pale yellow and the fruit generally is not unlike a huge Codlin. Season, October and November. *Pomona.*

HOME CORRESPONDENCE.

Cladrastis tinctoria.—Is not the statement that Cladrastis tinctoria flowered for the first time in England last year a mistake? In 1915, when I was in charge of the gardens at Stoney Ware, Marlow, I forwarded to you specimens which you identified as Cladrastis tinctoria. They were taken from a plant about eight feet high and the plant flowered in that and in several succeeding years. It came from Messrs. James Veitch and Sons' nursery with other somewhat rare shrubs. *Evans G. Jones.*

—— There is evidently a mistake in your note on this plant in *Gard. Chron.*, March 15, p. 141, in which you state that it was introduced in 1890, and flowered for the first time under cultivation in July, 1923. Mr. W. J. Bean in *Trees and Shrubs Hardy in the British Isles*, gives the year of its introduction as 1812, and mentions trees up to forty-five feet high in this country. I have never had the good fortune to see these large trees, but during the war years I was in charge of a garden in Oxfordshire, where a specimen of Cladrastis tinctoria, probably twenty feet high was growing; the tree flowered frequently, if not every year. Its long, drooping panicles of white flowers were much admired. Your reference is probably to C. sinensis. I draw attention to this error, because I do not like others to find the *Gardeners' Chronicle* in the wrong, as I maintain it is the most reliable gardening paper to-day. *Alfred T. Harrison, Culzean Castle Gardens, by Maybole.*

[The statement, as published by us, was given in *Kew Bulletin*, No. 1, 1924, and we did not question such a usually reliable authority, but, as Mr. Bean pointed out on p. 168, the *Bulletin* gave the name of the species wrongly.—Eds.].

Young Lads and Horticulture.—I have followed with interest your correspondence on scientific education for young gardeners by means of short courses, but it is rather surprising to find that on page 122 your correspondent, Mr. W. H. Divers, V.M.H., has not known that such short courses have been held continuously at the East Anglian Institute of Agriculture, Chelmsford, for twenty-nine years. The course is given in three terms, viz., Autumn term, three weeks; Spring term, four weeks; and Summer term, four weeks, and deals with the principles and practice of horticulture, and is intended primarily for persons employed in garden work and who intend to take up gardening as a profession. People who have attended these courses are now holding responsible positions in all parts of the world. *H. M. McCreath, East Anglian Institute of Horticulture, Chelmsford.*

—— I have charge of a small place of two acres, including four glasshouses, but I am by no means satisfied. I can please my employers, but not myself, by the work I do; hence, I am always ready to learn something new whenever chance offers. As *Constant Reader* remarks, expenses have been cut down, and in no uncertain way either. Often the gardener has not the necessaries he requires; also when he is unemployed he has no unemployment pay to draw on, and yet my employer, a public park's gardener, and a prominent trade grower respectively, all inform me that really good gardeners are difficult to obtain. I am very keen about my work, and if any of your readers could give me any information on the commercial side of gardening, public park gardening and private gardening, I should be grateful. I am sure that lots of other young men besides myself would be glad of such information from gardeners of standing; and perhaps some of the older gardeners would advise us just what branches to study; also as to whether it is advisable to specialise in the growing of any particular plant, as some do. Are there not means of obtaining scholarships for advanced study in horticulture and kindred subjects? *Leonard Dufton.*

SOCIETIES.

ROYAL HORTICULTURAL.

March 25 and 26.—Once again there was a fine display at Vincent Square on these dates and it consisted largely of Carnations, Orchids, Daffodils, Tulips, Hyacinths, flowering shrubs, hardy flowers and Roses, all of which were shown in fine condition. Novelties were few on this occasion, and the Orchid Committee appeared to have had the busiest session.

Orchid Committee.

Present: Mr. C. J. Lucas (in the chair), Sir John Rutherford and Messrs. Gurney Wilson (Hon. Secretary), E. R. Ashton, A. McBean, J. C. Cowan, J. Cypher, Fred. K. Sander, H. G. Alexander, C. Dye, H. H. Smith, H. T. Pitt, Stuart H. Low, J. Wilson Potter, H. D. McLaren and Chas. H. Curtis.

First-Class Certificate.

Odontoglossum eximium McBean's var. (*ardentissimum* × *crispum*). A glorious Odontoglossum of splendid form and large size. The spike shown carried six grand flowers. The bases of the sepals and petals, and the apices of these segments are blush white, but the rest of the flower, with occasionally small white spots showing through, is rich crimson-brown, the colour passing through to the back of the segments. The lip is blush white, with deep red brown markings and yellow crest. Shown by Messrs. J. and A. McBean.

Awards of Merit.

Cymbidium Kittiwake, Holford's var. (*Gottianum* × *Dryad*). In this lovely variety the sepals and petals are pure white and very substantial, while the lip is white, tinted pink, and with fine red lines and spots. Shown by Sir George Holford (Gr. Mr. H. Alexander), Westonbirt, Tetbury.

Odontoglossum Model (*Aiglon* × *Prometheus*). A good hybrid, with flowers of medium size and nice form. The sepals and petals are blush white, heavily barred and marked with deep brownish crimson. The rounded lip is white, with small crimson-brown markings on the base, and a little yellow colouring below the pretty crest. Shown by J. J. Bolton, Esq. (Gr. Mr. Lyne), Claygate Lodge, Claygate, Surrey.

Brasso-Cattleya The Globe (*B-C. Cliftonii magnifica* × *Cattleya Trianae, var. The Baron*). This is a hybrid of great refinement and excellent form. The broad petals are soft, rich, rose-pink, with purple tinting near the apex; sepals of similar colour; lip, rounded, frilled, intense royal purple at the front, rose-pink at base and margin, and yellow in the throat. Shown by Messrs. Armstong and Brown.

Cymbidium Alexanderi, var. Edusa. In this variety the sepals and petals are of a cream-pink shade and well spread out, making up a large bloom. The lip has deep red markings on a cream-coloured ground. Shown by the Hon. H. D. McLaren (gr. Mr. Puddle), Bodnant.

Groups.

Messrs. Stuart Low and Co. staged a very interesting and handsome group of Orchids, using big specimen plants of Cymbidiums as a back ground. Some excellent Odontoglossums and Odontiodas were grouped with Miltonia Bleuana, and various Cattleyas. Of special interest in this collection were Schomburgkia tibicinis, Cirrhopetalum picturatum with two spikes, Maxillaria picta, Bulbophyllum Sillemianum and Cypripedium bellatulum (Silver-Gilt Banksian Medal).

Messrs. Sanders contributed some delightful plants of Cattleya Snow Queen, C. Avalanche, C. Dawn, and C. Freda Sander, all lovely white-flowered hybrids; with these were Lælio-Cattleya Royal Sovereign var. ignea, with brilliant orange and ruby colouring; Dendrobium xanthocentrum var. borealis, the old Ada aurantiaca, the quaint Xylobium leontoglossum, Oncidium pubes and some Odontiodas (Silver Banksian Medal).

H. T. Pitt, Esq. (gr., Mr. F. W. Thurgood), Stamford Hill, had a very pleasing exhibit in which well grown specimens of Cymbidium Lady Colman, C. Alexanderi, and C. eburneo-Lowianum, formed a suitable back ground for such interesting subjects as Odontioda Dora, very fine; O. Schroderæ, O. Purple Princess, Odontoglossum Zena, with a fine spike of yellow and brown flowers; Lycaste Skinneri alba, the somewhat rare Cypripedium glaucophyllum, and the popular Sophronitis grandiflora (Silver Banksian Medal).

Narcissus and Tulip Committee.

Present: Mr. E. A. Bowles (in the Chair), Miss Willmott, and Messrs. H. Backhouse, J. D. Pearson, W. F. M. Copeland, Geo. Churcher, F. Barchard, H. V. Warrender, A. R. Goodwin, C. C. Titchmarsh, George Monro, F. H. Chapman, H. G. Hawker, Peter R. Barr, W. Poupart, G. W. Leak, Reginald Cory, Charles H. Curtis, Herbert Smith, John S. Arkwright, Alister Clark (visitor), and R. W. Ascroft (Sec.).

Awards of Merit.

Narcissus Adela.—A fine, well-balanced Leedsii variety, with pure white perianth segments, the trumpet being tinged with pale primrose-yellow.

Narcissus Auguste.—A splendid well proportioned flower of good substance belonging to the Barri section. The flowers measure fully three-and-a-half inches across, with white overlapping perianth segments. The cup has a well-defined rim of bright fiery red, is daintily frilled and has a Primrose-coloured centre.

Narcissus Killigrew.—An Incomparabilis variety of exceptional merit. The flowers measure four inches across, the cup being a little more than one inch in diameter. The broad, over-lapping perianth segments are a delightful shade of yellow, while the cup is of a bright orange-red colour.

Narcissus Hesla.—A distinct variety containing N. Jonquilla blood. It is of large size, delicately perfumed, measuring three-and-a-half inches in diameter. The colour is a pleasing shade of yellow, and the small corona is of the same colour. All the above were shown by Mr. P. D. Williams, Lanarth, St. Kerverne, Helston, Cornwall.

Groups.

The group of Daffodils exhibited by Messrs. Barr and Sons provided a great attraction to Daffodil lovers. The blooms were of excellent quality and many of the varieties were unnamed seedlings of great merit. Chief among the named sorts were the large yellow trumpet varieties King Alfred, Tresserve and Van Waveren's Giant, while the Giant Leedsii class was represented by St. Hywin and St. Hilda. Sunrise, Bernadino and Croesus were a few of the more highly coloured varieties (Silver-Gilt Banksian Medal).

Messrs. J. R. Pearson and Sons showed a collection of Tulips and Daffodils, and among the latter were the fine bicolor Florence Pearson; Lowdham Beauty, a beautiful pure white Giant Leedsii; Mrs. Franklin, an excellent flower; Firetail (Barri) creamy white perianth with deep red flat cup, and Lord Roberts, a mammoth yellow trumpet variety. Of Tulips there were fine vases of Edmée, cherry-rose; Marconi, violet blue; Frans Hals, a large deep violet flower; and Bartigon, clear red (Silver Banksian Medal).

The Maytham Gardens made a very neat and attractive display of cut Tulips arranged in artistic vases set against a black background, and of especial merit were the flowers of La Merveille, salmon-red; Orion, dark scarlet; Mrs. Potter Palmer, purple; Moonlight, soft yellow; Valentine, a large flower of rich blue-violet, and Frans Hals, blue-violet (Bronze Banksian Medal).

Forced early-flowering Tulips were shown in excellent condition by Messrs. R. and G. Cuthbert, who staged, amongst many other sorts, the yellow varieties Prince de

Ligny and Mon Tresor; Lady Boreel, pure white; Sir T. Lipton, scarlet; and Prosperine, violet rose (Silver Banksian Medal).

Messrs. R. H. Bath, Ltd., again showed a bright selection of Tulips growing in bowls of fibre, and made a feature of the Cottage variety La Reve, a delightful shade of salmon rose. Other varieties included The International, violet rose; La Ville de Haarlem, orange-scarlet; Professor Rauwenhoff, red; and Dom Pedro, bronze (Silver Banksian Medal).

Floral Committee.

A Section. *Present:* Messrs. J. F. McLeod (in the Chair), A. Turner, H. J. Jones, W. B. Gingell, W. Janes, Donald Allan, W. P. Thomson, Chas. E. Pearson, W. Stephens, G. W. Leak, M. C. Allwood, W. Howe, D. B. Crane, J. B. Riding, and W. D. Cartwright (Sec.)

B. Section. *Present:* Messrs G. W. Loder (in the Chair), R. C. Notcutt, W. J. Bean, Reginald Cory, E. A. Bowles, F. G. Preston, Arthur Bedford, T. Hay, H. V. Warrender, H. W. McLaren, C. Williams, E. H. Wilding, W. B. Cranfield, S. Harrow, and R. W. Wallace.

Awards of Merit.

Saxifraga Lady Beatrix Stanley.—A charming hybrid obtained by crossing Saxifraga lilacina with S. Goldroneana. In form of growth and habit the plant resembles the first-named parent and is evidently freer flowering than this species, for the plant exhibited was studded with rosy purple flowers. The inflorescences are one flowered, the blooms being produced on short stems above the dense, greyish-green foliose growth. Shown by Mr. Maurice Prichard, Christchurch.

Crocus Queen of the Blues.—A very large-flowered variety with egg-shaped blooms and of a violet-blue colour, marked reddish violet at the base of the segments. The leaves are about four inches long, broad, and possessing a central band of white. Shown by The Director, R.H.S. Gardens, Wisley.

Iris uuguicularis var. Peacock.—This very pretty hybrid was obtained by crossing a form of I. unguicularis from Crete and another form from Cephalonia. The colour is purplish blue and the falls are marked with a yellow blotch and delicately veined, somewhat resembling a peacock's feather in appearance. Shown by Mr. W. R. Dykes, Wimbledon.

Cultural Commendation

Cephalotus follicularis.—A very fine specimen of this insectivorous plant, exhibited under a bell jar, was shown by Mr. W. Hales, Curator, Chelsea Physic Gardens, London. The dainty pitchered leaves are about one inch long and are covered externally with minute, alluring glands.

Groups.

Of the many collections of forced shrubs, the one from Messrs. L. R. Russell, Ltd., was particularly pleasing, and was arranged in the form of an oval on the ground level just inside the entrance. Named varieties of Azalea mollis and A. indica figured conspicuously and magnificently flowered specimens of the deep rose Azalea Hinodigiri occupied positions at each end. Laburnum Vossii, Wistaria sinensis, Viburnum Carlesii, Prunus sinensis alba, Pyrus Malus floribunda, and P. Niedzwetzkyana were in excellent condition, and in the centre of the group was arranged a collection of large-flowered Clematis, chief of which were Nellie Moser, pale mauve; Mrs. Cholmondely, light blue; Edouard Desfosse, deep mauve with dark centre, and Mrs. George Jackman, pure white (Silver-Gilt Banksian Medal).

Mr. G. G. Whitelegg also showed forced shrubs and made a feature of the Azalea mollis J. C. Van Tol, the specimens being well covered with blooms of a bright salmon-red colour (Silver Banksian Medal).

Close by Messrs. Wm. Cutbush and Son had a collection of greenhouse and forced shrubs including Azaleas in variety, among which were the yellow Azalea Anthony Koster, the white Pyrus Malus Sargentii, Rhododendron ovatum, Rhodora canadensis, Wistaria sinensis and Cytisus praecox. Towards the end of the group the same firm arranged a small rock garden planted with suitable subjects (Silver Banksian Medal).

A very bright collection of shrubs was also displayed by Messrs. John Peed and Son, who showed Rhododendron Pink Pearl, Kalmia latifolia, the blooms of which were almost pure white, Lilac Marie Legraye and Prunus sinensis alba flore plena (Bronze Banksian Medal).

Owing to the nearness of the British Carnation Society's Show, the exhibits of Carnations were of a very high standard and that from Mr. C. Engelmann was particularly attractive. The flowers were of exceptional quality and were effectively staged. The chief varieties represented were Tarzan, scarlet, Scarlet Iona, Enchantress Super-supreme, salmon pink; Goliath, salmon pink; Belle Washburne, scarlet; and White Enchantress (Gold Medal).

Messrs. Allwood Bros. also displayed Carnations with their usual skill; prominent varieties were Edward Allwood, scarlet; Jessie Allwood, the new yellow Malmaison; Topsy, crimson; Laddie, salmon-pink; Chintz. a charming fancy variety; and Wivelsfield Apricot, of apricot-buff colour (Silver Gilt Banksian).

Carnations were also staged in fine condition by Messrs. Stuart Low and Co., who made a feature of Arnos Grove, Brilliant, Eileen Low, White Pearl, and Lady Inverforth, and the same firm was also responsible for a group of greenhouse plants which included magnificently flowered specimens of Acacia pendula (Silver Banksian Medal). The pleasing group from Messrs. K. Luxford and Co. contained excellent vases of Maine Sunshine, Enchantress, White Pearl. Cheerful and Aviator (Silver Banksian Medal).

A magnificent group of Hyacinths, arranged by Messrs. J. Carter and Co., was one of the features of the meeting. The large bowls of plants were artistically grouped on a low length of table in a setting of Berberis foliage. Among the principal varieties were L'Innocence, white; Queen of the Pinks, bright pink; Dr. Lieber, light blue; City of Haarlem, yellow; King of the Blues, dark blue; Le Victoire, brilliant red; Orange Above, orange; LeGrandesse, pure white; and Jacques, salmon pink (Silver-gilt Banksian Medal). Some excellent umbels of Clivias were shown by Lady Aberconway and the Hon. H. D. McLaren, Bodnant.

Roses were featured by Mr. Elisha J. Hicks who contributed a bright display of blooms including Climbing Lady Hillingdon, Chas E. Shea, rose pink; Mrs. George Norwood, rich pink; Souvenir de C. Pernet, red and yellow; and Premier, deep pink (Silver Banksian Medal). White Echo, a polyantha Rose with white flowers edged with pink. was staged by the Rev. J. H. Pemberton, and Mr. George Prince showed splendid blooms of Allan Chandler, a new pillar Rose with large, red semi-double flowers; Paul's Scarlet Climber, Seagull, a multiflora variety with white flowers and Austrian Copper (Silver Banksian Medal).

The collections of hardy plants were numerous and Mr. Maurice Prichard had a bright display of alpines including Saxifraga oppositifolia Wetterhorn, S. hybrida H. Marshall, S. Lady Beatrix Stanley, a cross between S. lilacina and S. Goldroneana with rose-mauve flowers, Primulas in variety, and Androsace coronopifolia (Bronze Banksian Medal).

Messrs. W. H. Rogers and Son, Ltd., showed Primula Crispii in fine form together with Veronica Hulkeeana, Soldanella montana and Morisia hypogae (Silver Banksian Medal).

In the group from Messrs. Maxwell and Beale were good specimens of Primula rosea grandiflora, Saxifragra Irvingii, Soldanella alpina and the dwarf S. pusilla alba.

Messrs. John Waterer, Sons and Crisp, Ltd., were represented by a bright display; and showed clumps of Anemone Pulsatilla and the varietal forms A. P. alba and A. P. rubra, together with Primulas, Erythronium Hartwegii, Daphne Blagayana, and the quaint Tulipa persica (Bronze Banksian Medal).

Messrs. R. Gill and Son showed particularly fine vases of wide-petalled Anemones known as Gill's Giant Strain and closely resembling the St. Brigid type. The same firm also displayed a huge bank of Primula Wanda and a single plant of the common wild Primrose P. acaulis, possessing over a thousand flowers (Silver Banksian Medal).

Mr. G. Reuthe showed a fine selection of alpines and hardy Rhododendrons, the latter including R. arboreum roseum, R. ciliatum, R. White Cheer, and R. Cornubia (Silver Banksian Medal). Messrs. Carter Page and Co. furnished a rock garden with Saxifragas and Primulas in variety (Bronze Banksian Medal) and Messrs. Pulham and Sons showed a bright collection of evergreen shrubs which included Picea Remontii, Berberis Sargentiana, Ilex Pernyi, and Ulex europaeus flore plena (Bronze Banksian Medal).

Mr. G. W. Miller showed a comprehensive collection of single and double Primroses and Polyanthuses in many shades of colour, together with Orobus albus, O. a. roseus, and magnificently flowered specimens of Daphne Cneorum (Silver Banksian Medal); and Mr. F. G. Wood also staged Primulas and other alpines in variety.

Messrs. Barr and Sons showed a collection of Crown Imperials, Freesias, Tulips, Daffodils and Irises (Bronze Banksian Medal). Violets were shown in excellent condition by Mr. J. J. Kettle (Bronze Banksian Medal); The Misses Allen Brown and Mr. B. Pinney.

Messrs. R. Tucker and Sons showed a fine selection of choice Saxifragas together with Anemone vernalis and A. Madame Van der Elst (Bronze Banksian Medal), while The Maytham Gardens were responsible for a collection of plants in which Viburnum Carlesii, Muscari Heavenly Blue and grey foliaged Centaureas were prominent.

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (Chairman), J. Cheal, W. Poupart, W. G. Lobjoit, Geo. F. Tinley, S. B. Dicks, H. Prince, F. Jordan, T. Pateman, C. Reynolds, F. Beckett, E. Neal, J. Basham, W. Bates, W. H. Divers, E. A. Bunyard and E. A. Laxton.

The chairman referred to the pleasure of the Committee in seeing Mr. W. Bates present again after his long illness, and he also welcomed a new member of the Committee in Mr. Edward Laxton. There were two exhibits, of vegetables and fruit respectively. The vegetables were shown by Messrs. Sutton and Sons and were awarded a Silver Knightian Medal. The principal subjects were Broccoli, Seakale, Cucumbers, French Beans, Spinach Beet, Mustard and Cress, Rhubarb and Mushrooms. Ivory White Seakale was exceptionally fine, as were also Pride of the Market Cucumbers and French Bean Premier. The prolonged cold winter was reflected in the dwarf growth of the Cabbages and the small heads of Broccoli; although the latter were of small size, the quality was all that could be desired.

The fruit consisted of a collection of Apples shown by Messrs. George Bunyard and Co., Ltd., as representing some of the best sorts in season. The varieties on this occasion were Rhode Island Greening, Wagener, Sir John Thornycroft, Ontario, Calville Malingre, Baxter's Pearmain, Newton Wonder, Rosemary Russet, Sanspareil, Allen's Everlasting, Calville Rouge, and Edward VII.

READING AND DISTRICT GARDENERS'.

About three hundred members and lady friends assembled at the Abbey Hall on the 12th inst., on the occasion of the Annual Concert. The President, Mr. Councillor Frank E. Moring, presided, and was supported by Mr. Councillor T. Waldron, Mr. M. Goddard

(Chairman), and Mr. A. W. Gower (Vice-Chairman.

Through the kindness of the President and the Vice-President (Mr. Leonard Sutton), the well known and popular Concert Party, the "Queries" was engaged. The vocal standard of the party is a high one and the individual solo numbers by Miss Helen Smith, Mr. H. Hopcroff, Mr. George Weait and Mr. Horace Bragg, were well received. The humorous items were capably rendered by Mr. J. B. Thompson and Mr. Rollie Kelly. The party was strong in the concerted numbers which were quite a feature of the programme, including "Macnamara's Band," "Old John Bradelum," "Lions," and "The Voice Trial." The acting throughout was certainly above the average. Mr. Len Cheney ably filled the role of pianist. The spontaneous applause of the audience and the frequent encores testified to their appreciation of the efforts put forth to entertain them. Altogether a very successful and enjoyable evening was spent.

The platforms were most tastefully decorated with Cinerarias and Primula malacoides from The Gardens, Hillside, per Mr. F. Townsend, and Cyclamen, Primulas, Daffodils and Palms from Messrs. Sutton's Trial Grounds, per Mr. E. R. Janes.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Friday, March 14.—*Committee Present:* The Rev. J. Crombleholme (in the chair), Messrs. R. Ashwood, A. Burns, A. Connisby, D. A. Cowan, J. Cypher and H. Arthur (Secretary).

First-Class Certificate.

Dendrobium Wardianum album magnificum, the largest flower of the type yet seen. From S. Gratrix, Esq.

Awards of Merit.

Odontoglossum crispum Lady Isabel; O crispum Gibraltar, Cattleya Stuartii var. Purity. From S. Gratrix, Esq.

Groups.

S. Gratrix, Esq., West Point (gr. J. Howes), was awarded a Gold Medal for a group of Orchids in variety.

Mrs. Bruce and Miss Wrigley, Bury, (gr. Mr. A. Burns), staged a collection to which a Silver-gilt Medal was awarded.

Large Silver Medals were awarded to A. Hanmer Esq., Buxton (gr. Mr. G. Giles), and to Messrs. J. Cypher and Sons, Cheltenham, respectively, for groups.

Obituary.

Sydney Morris.—It is with very deep regret we record the death of Mr. Sydney Morris, J.P., of Earlham Hall, Norfolk. He died on Monday, the 24th inst., in the South of France, where he went after having undergone a very severe operation last summer. Mr. Morris, who was seventy-three years of age, intended to take up a medical career, but he abandoned the study of medicine when invited by his uncle, the late Mr. William Morris, to assist him in the management of the Wretham Hall Estate in Norfolk. Mr. Sydney Morris subsequently succeeded to the estate. This fine old mansion was destroyed some years ago by fire, and Mr. Morris sold the property and leased Earlham Hall, Norfolk, a name well-known to horticulturists because of the many fine plants that were raised by Mr. Morris in the gardens there. His name will long be associated with the Montbretia, of which he raised so many excellent varieties, indeed, he may be said to have given us a new race of these fine summer flowers which grow well in almost any kind of soil and district. Mr. Morris' taste in flowers was catholic, and his gardens, which are amongst the best in Norfolk, are celebrated for Roses and hardy herbaceous flowers. The deceased gentleman was a member of the Floral Committee of the Royal Horticultural Society for several years.

W. Colin Romaine.—We regret to learn of the death of Mr. W. Colin Romaine, an eminent amateur rosarian who for many years was the moving spirit of the Windsor Rose Show. He had been associated for a long period of years with the work of the National Rose Society, and at the time of his decease was a honorary Vice-President of that body. Prior to the war, Mr. Colin Romaine was a successful competitor, and his tall, alert figure was well known at most of the leading Rose exhibitions.

Max Winkelmann.—We regret to record the death on February 29, after three weeks' illness, of Herr Max Winkelmann, the well known nurseryman and Cyclamen grower of Potsdam, Berlin. Winkelmann, like so many other nurserymen, was at first a private gardener in a good establishment, but afterwards set up for himself in a very small way in Potsdam. By dint of hard work and real ability he gradually built up the large establishment of which he was the head, where Cyclamens were the chief speciality. He had on hand a project to build a new and extensive Cyclamen house, and all the plans were ready at the time of his regretted demise.

NEW HORTICULTURAL INVENTIONS.

Latest Patent Applications.

5956.—Audibert, M.—Flower and fruit gathering scissor. March 8th.
5154.—Deck, H.—Machines for rejuvenating grass lands. February 28th.
4195.—Chemische Fabrik auf Actien vorm E. Schering.—Means for protecting plants against insects, etc. February 18th.
4229.—Pogose, N.—Tree Pruner, etc. February 19th.

Specifications Published this Month.

197,291.—Power Farming Machinery Co.—Weed extractors.
212,161.—Gray, H.—Fruit Pickers,
211,759.—Pugh, Ltd., C. H., and Bull, F. G.—Device for cutting weeds and the like out of lawns and for replacing the same with turf.
198,378.—Henning, G. B.—Hand rakes.
211,056.—Montague, H. H.—Mowing machines and cutters therefor.

Abstract Published this Month.

Carrying Box for Flowers.

The problem of carrying a bunch of flowers without crushing the blooms, has recently been solved by the production of a novel flower holder, devised by Mr. R. E. Kidd, of 2, Bedford Park Mansions, Chiswick (*Patent No.* 209902). The device consists of a collapsible cardboard box in which is a neat arrangement of thin cross wires in which the stems of the flowers are held. Four flaps support the heads of the blooms, and a substantial carrying loop is secured to one side of the box.

This list is specially compiled for *The Gardeners' Chronicle*, by Messrs. Rayner & Co., Regd.; Patent Agents, of 5, Chancery Lane, London, from whom all information relating to Patents, Trade Marks, and Designs, can be obtained gratuitously.

Messrs. Rayner & Co., will obtain printed copies of the published specifications and abstract only, and forward the same post free for the price of 1s. 6d. each.

GARDENING APPOINTMENT.

Mr. H. W. James, for nearly four years Gardener to Mrs. Taunton, Widney Manor, nr. Knowle, Warwickshire, as Gardener to Mrs. Fort, Kings Standing, Burton-on-Trent.

ANSWERS TO CORRESPONDENTS.

Aralia cordata: *R. E. M.* Like most of the hardy and greenhouse Aralias this species may be propagated by means of root cuttings, made in the usual way, about two inches in length. They should be dibbled into pots or boxes of sandy soil, leaving the tops of the cuttings just level with the top of the soil. They will root readily in a close case with slight bottom heat, or in a box stood over hot-water pipes, as you suggest.

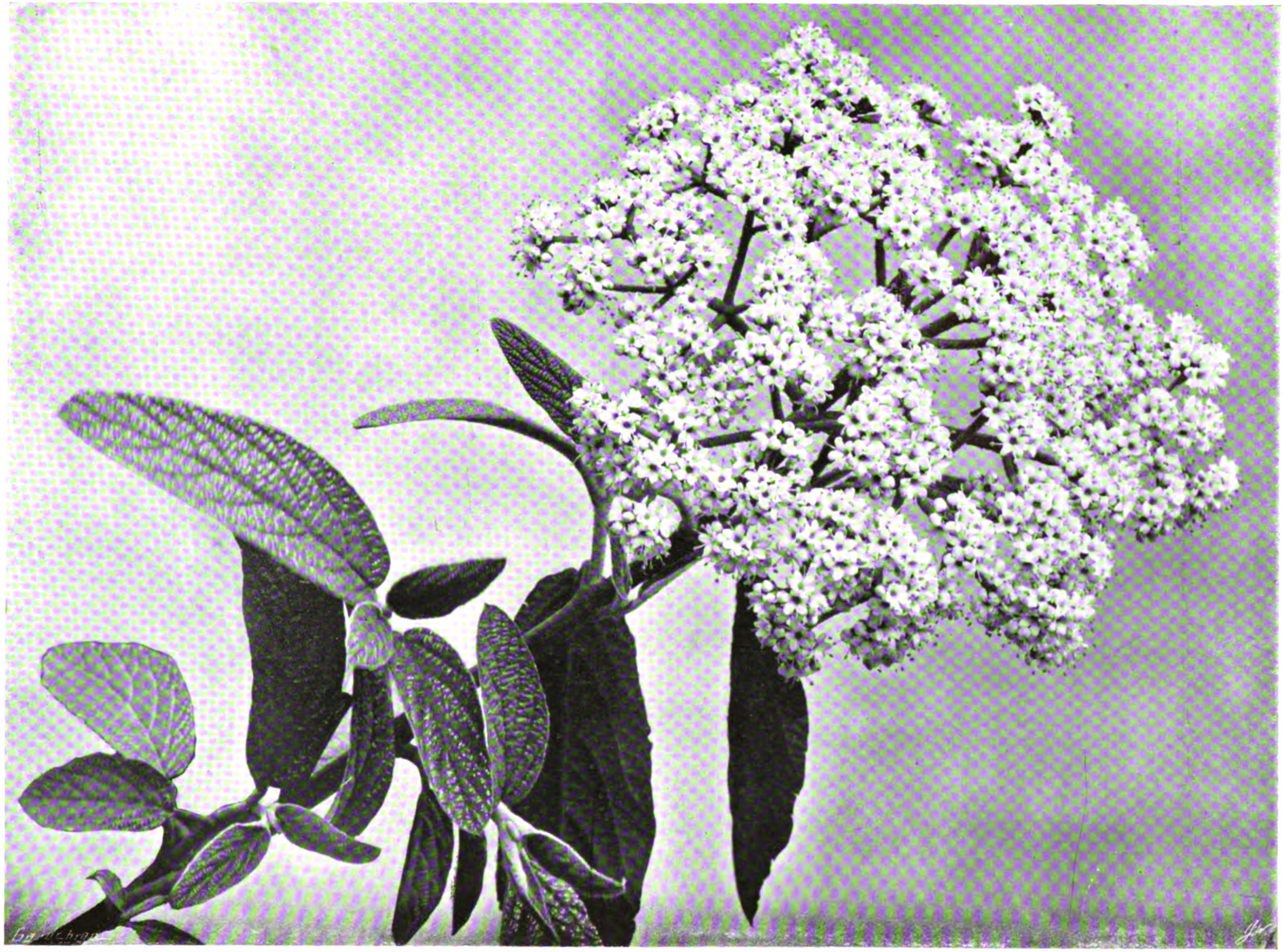
Celery Disease: *A. J. L.* We know of no fungicide that you may dig into the soil to act as a preventive against the Leaf-spot disease of Celery. The disease may be carried through the seed and no matter from where you obtain your supplies the seed should be soaked in hydrogen-per-oxide (full strength) for two hours before sowing. The young plants, as soon as they are established out of doors, should be sprayed with Bordeaux mixture or Burgundy mixture every three weeks until the crop is finally earthed up.

Freesias for Christmas: *J. O. R.* Freesia refracta alba may be obtained in bloom for Christmas or thereabouts without the aid of much artificial heat. The corms should be potted early in July, about seven corms being inserted in a five-inch pot. The pots should be stood in a cold frame and slightly shaded from hot sunshine. The lights should only be placed on the frames when the weather is very wet. The plants should not be overcrowded in the frames and when frost threatens they should be removed to a structure from which frost can be excluded. A shelf in a Peach house is a suitable place. When the plants finish flowering they may be removed to an early vinery and given occasional doses of liquid manure. When the growth dies down water should be withheld and the corms taken out of the pots and dried off. The corms may be used for the next year's supply of flowers and should not be thrown away.

Names of Plants: *W. B.* 1, Cupressus Lawsoniana; 2, Phyllostachys viridi-glaucescens; 3, a form of Euonymus japonicus; 4, Iberis sempervirens; 5, Hoya carnosa. *R. L. B.* Primula floribunda. *A. R. B.* The shrub is Franciscea calycina, synonymous with Brunfelsia calycina. It is a native of Brazil and there are many well marked forms in cultivation including F. c. eximia, F. c. floribunda and F. c. macrantha.—*H. F.* Cotoneaster lactea.—*Westbury, Bristol.* Laelia superbiens, a native of Guatemala This Orchid was discovered by Mr. G. Ure Skinner and introduced by the Royal Horticultural Society in 1842; it first flowered in this country in 1844. As a species it stands quite alone in the genus, the habit of the plant being very near to that of some of the Schomburgkias, but the flower is that of a true Laelia. Laelia superbiens is a good plant for the warm conservatory or temperate house, especially if given a sunny position.

Violets in Frames: *C. F.* Plants for growing in frames should be lifted from the open ground about the end of September, and planted in the frames in a bed of fairly rich soil with the foliage as near the glass as possible. Thoroughly water in the plants and keep the frame closed for about a week to enable the roots to take hold of the new soil. Air should then be freely admitted on all favourable occasions, and the lights should be removed altogether on mild sunny days. The blackening of the foliage of your plants is, no doubt, caused by the foggy, sunless weather which is very injurious to the foliage.

Communications Received.—C. G. R. S.—A. T. J.—H. B. S.—J. W. B.—E. S.—F. J.—C. H. P.—W. R.—H. M.—J. P.



VIBURNUM RHYTIDOPHYLLUM.

THE
Gardeners' Chronicle

No. 1945—*SATURDAY, APRIL* 5, 1924.

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SUPPLEMENTARY ILLUSTRATION.

Viburnum rhytidophyllum.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 48·1.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 17. 10 a.m.: Bar, 30·25°; temp. 42° Weather—Cold and overcast.

A Late Season.

A SEASON like the present is calculated to strain severely the patience and the resources of the gardener. After a winter of unprecedented tediousness and variability, spring delays its coming, so that except in very sheltered gardens early plants are far behind their "schedule" time of flowering. Rarely has a winter taken such a heavy toll of plants. The reasons for the losses which have been sustained in so many gardens are not easy to define. Although frost has been frequent it has not been of extreme severity. The wetness of February was, we think, well above the average, but the rain which fell almost without intermission was not generally heavy. The sunny days of March did far less than might have been expected to push on vegetation; the frosty nights no doubt undoing the work of the warm days. East winds again have exerted their not altogether unkindly powers of checking vegetation. As a result of the early onset and prolongation of winter conditions—so marked as almost to justify Byron's petulant observation, "the English winter ends in July to begin again in August"—Daffodils were only just beginning to open their flower buds in the last week of March. Some of the earliest flowering shrubs such as Hamamelis flowered only in a dingy way, and others like Garrya elliptica, whilst flowering profusely and keeping the polished, well-groomed appearance so rare and precious in the winter garden, begin as they pass out of flower to look very weatherbeaten. Alone of early flowering things Forsythias and particularly Forsythia vitellina and F. spectabilis have appeared in all their natural radiance and brought much needed brightness to a garden wherein the usual brilliance of Polyanthuses and early-flowering Wallflowers has been sadly lacking. In the troubles and set backs caused by such a season there is much for the young gardener to learn, and though it may require a poet to appreciate the sweetness of adversity, any ordinary resolute man may admit its usefulness. Thus the state of many shrubs may teach him that hardiness is often not in absolute character, but one determined by the completeness of last season's growth. A shrub such as the Jerusalem Sage (Phlomis fruticosa) planted to form a hedge provided us recently with a striking illustration of this fact. Only here and there among a line consisting of many hundreds of these plants was one to be found which had not suffered severely. Those which had escaped had escaped altogether and their leaves preserved the formal shape and pleasing greyness. The others all drooped as they might in prolonged drought. Inspection showed that the uninjured plants had, as witnessed by the size of their uppermost leaves, finished off their growth last year in thorough manner; whereas the victims were those which had not completed their growth before the early winter overtook them. Curiously wide spread trouble during the present winter has been caused by field mice, and in one garden in which we are interested all sorts of well established wall-plants have been destroyed by their malicious mischievousness. Wide breadths of Campanula Portenschlagiana have been "nibbled to the bone," great tufts of Oenothera rupicola have had their stems bitten absolutely through and even Crocuses have been destroyed as though mown down with a scythe, leaves and buds and flowers being all alike bitten close off at the ground level. From the state of most kitchen gardens it is safe to prophecy that vegetables will be dear until the new crops come in. The Brassica tribe has suffered severely and those gardeners have scored who take care to have plenty of stem vegetables for forcing—Sea Kale, Chicory, Asparagus, and the like. Yet in spite of this catalogue of troubles, which could be extended, the winter has done much good in the garden. There have been spells of open weather when digging could be done and heavy land in particular which has been turned over and left rough has benefited by the disintegrating action of the night frosts. Pests also, as may be hoped, have suffered to the subsequent advantage of the garden. Fruit trees, moreover, seem to have withstood the winter surprisingly well. Pears are full of flower buds and Apples, which looked backward during the autumn, have developed their fruit buds fairly well. Plums also seem promising, indeed, so far as our observation goes, if the weather takes a turn for the better during the month of April, the garden may flourish as a whole all the better for the rough handling which it has sustained during this long and tedious winter. There will, of course, be empty spaces, but the reserves of plants which the gardener keeps as an insurance against misfortune should fill these.

White Flies.—Mr. C. C. Gowdey, Government entomologist, Jamaica, gives some interesting details of the life history of these destructive pests in an article entitled "The White Flies (Aleurodidae) of Jamaica," in *Entomological Bulletin No.* 3, issued by the Department of Agriculture, Jamaica. He states that the members of this family have four stages in their life cycle, the egg, the larvae, of which there are four stages, the pupae and the adult. The White Flies are closely allied to the Scale insects (Coccidae), to the plant Lice (Aphididae), and to the jumping plant Lice (Psyllidae). Their eggs are attached to the food plant by means of a stalk at or near the larger end of the eggs and they are usually deposited on the undersides of the leaves. The number of eggs laid by a single female is said to be unusually large, provided favourable food conditions exist. The duration of the egg stage is about ten days, but the period of incubation is influenced by temperature, and the eggs hatch much quicker in the summer than in the winter. The reproduction is largely parthenogenetical, hence the rapid spread of the pest. As with most members of this family, wax secretion is common. The plants attacked in Jamaica include Roses, Citrus, Coffee, Mango, Sour Sop, Sweet Sop, Guava and Breadfruit. The Aleurodidae known to occur in Jamaica are represented by two subfamilies, Aleurodicinae and Aleyrodinae. The former is represented by two species and the latter by five. Many of the representatives have a wide habitat and some are found not only in Jamaica, but in Java, southern China, India, Ceylon, Costa Rica, etc.

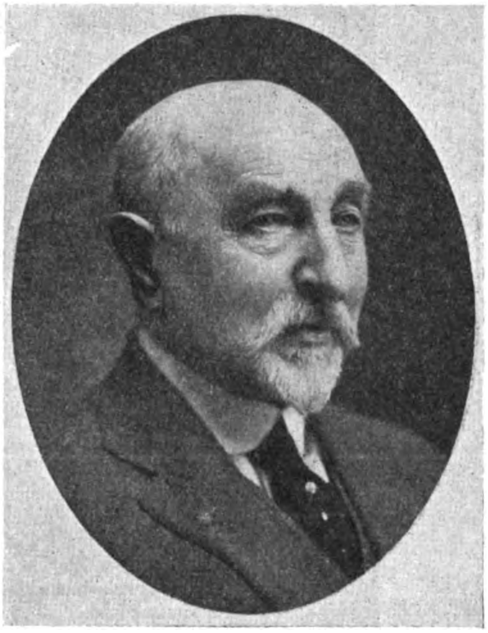
The Recent Earthquake in Japan.—An interesting paper on the earthquake and the work of reconstruction in Japan was delivered by Mr. Iyemasa Tokugawa, O.B.E., of the Japanese Embassy, at a recent meeting of the members of the Royal Society of Arts. The earthquake was preceded by a strong gale, but at ten o'clock in the morning the gale ceased and everybody in town and country were looking forward to the enjoyment of a quiet Saturday afternoon. At about twelve noon the first rumblings were heard and the earthquake started its terrible destruction. In the case of Yokohama the disturbance of the earth was compared to the billowing of the surface of the ocean under a great storm and the next moment clouds of dust, caused by the falling of houses, covered the scene, and then smoke from the fire which followed blotted the whole city from sight. One earthquake shock followed another and in twelve hours about one hundred and fourteen shocks were experienced. The earthquake seems to have been caused by a subsidence of the earth on the south-western part of the Sea of Sagami. The casualties in Tokyo were over one hundred thousand dead and missing and over forty-one thousand injured, while in Yokohama over twenty-six thousand persons were killed or reported missing and over twenty-four thousand injured. The vast destruction at Tokyo made it necessary to erect temporary wooden buildings in public parks and available ground at shrines, temples and schools, and the grounds of the Imperial Detached Palaces in Tokyo were thrown open to the public for the same purpose.

A London Gardens Competition.—The gardens competition organised by the *Daily Telegraph* last year proved so successful that those concerned have decided to hold a similar competition this season and to augment the value of the prizes, which together amount to £450. The competiton is divided into four sections, namely (1) for a back, front, or side garden on the ground level having an area not exceeding a quarter of an acre, for which no restrictions are imposed as regards the making or management; (2) for a similar garden having an area of not more than four hundred square yards, managed or maintained without professional help or paid labour—the first prize in both these classes is £100, with other prizes of £40, £15, and £10, and in the case of the smaller garden a fifth prize of £5; (3) for formal gardens having an area not exceeding three hundred and fifty square yards in which the first prize is £50, second prize £20, and third prize, £10; and (4) for gardens of houses of rateable value not exceeding £35 per annum, in which the first prize is £25, second £10, third, £5. and fourth, £2. A few simple rules govern the competition, and these may be obtained from the Gardening Editor, *Daily Telegraph*, Fleet Street, E.C. 4.

Succulent Plants.—The February issue of our contemporary *Gartenschönheit*, contains a number of excellent illustrations of succulent plants which are more popular on the continent than in this country. The four plates in colour are especially interesting; the first represents a view of the Succulent Garden at La Mortola, on the Italian Riviera, and the second is a nearer view of a single Aloe, with six or seven fully developed flower heads. The colour of the flowers is excellently produced, but the artist has not been quite so successful with the foliage. Another plate shows Phyllocactus Jupiter, and a fourth a flower spike of Aloe mitriformis var. xanthacantha, from a specimen in the Dahlem Botanic Garden. There are also numbers of black and white illustrations of similar subjects, by far the most interesting of which are photographs taken in Mexico of Succulents growing in their native habitat. Some of the specimens shown are of giant size; a plant of Echinocactus grandis photographed in the mountains near Tehuacan, at a height of about 5,500 feet, is said to be between six feet and seven feet high and nearly three feet through, and this was no rare exception. Such a specimen would doubtless be hundreds of years old; the lower part of the plant was found to be almost lifeless, only the upper part growing and flowering. Other species figured in the issue are Echinocactus pilosus and E. pectinatus in the state of Coahuila, Cereus stellatus, found at a height of about 5,500 feet, and Pilocereus Letezo, photographed at about 4,600 feet near Rio de Napotlitan. The last two illustrations are of quite a different nature from the rest; they are reproductions of very old prints. The first from a book published in 1708, Volkamer's *Nürnbergische Hesperides*, is the earliest known (recognisable) illustration of the night-flowering Cereus, Queen of the Night; the other represents a pot-plant of Opuntia major angustifolia, and is of still earlier date, being from a book by A. Munting published in 1696.

Fourth International Seed Testing Congress.—Arrangements are well advanced for the fourth International Seed Testing Congress which is to be held in London and Cambridge during the second week of July next. Most of the principal countries in the world, and in particular those where an Official Seed Testing Station is established, have appointed official delegates to attend. The organisation of the Congress, which is on similar lines to that of the previous International Seed Testing Congress held at Copenhagen in 1921, is being carried out by a small Committee set up by the Ministry of Agriculture and Fisheries. Most of the meetings will take place at the National Institute of Agricultural Botany, Cambridge, and papers on various phases of seed testing will be contributed by certain of the delegates, and subsequently discussed. In addition, visits to the British Empire Exhibition at Wembley, Rothamsted Experimental Station at Harpenden, and the School of Agriculture and other places of interest in Cambridge will be organised.

Mr. W. A. Jenkins.—The superintendent of the Parks and Open Spaces of the Borough of Stockton-on-Tees commenced his gardening career in the gardens of St. Pierre Park, near Chepstow, in Monmouthshire. The lady owner of the estate took a keen interest in her garden, which was under the direction of a very capable Scotchman. Here Mr. Jenkins spent four years and laid that foundation of knowledge which has proved invaluable. After three years spent in another good garden, he obtained an appointment as journeyman at Tredegar Park, Newport, the seat of Lord Tredegar. Here, as many of the older readers of *The Gardeners' Chronicle* will remember, gardening was carried out elaborately and on a very high scale. Following two years at Tredegar Park, Mr. Jenkins spent some time in the nurseries of Messrs. James Veitch and Sons of Chelsea, and gained further experience in several large gardens in the counties of Middlesex, Buckinghamshire, Berkshire, and Devonshire. Eventually he was sent by Messrs. Wills and Segar to manage a garden for a colliery owner in the county of Durham. Here he found an appreciative employer and became a very successful exhibitor, especially of indoor fruits, not only at local shows but at Edinburgh and Newcastle. Fourteen years were spent in this garden and having acquired something more than a local reputation as a cultivator, Mr. Jenkins was chosen from about two hundred applicants to fill his present position. This was in the year 1895, when Stockton Park had only just been opened by King George, who was then Duke of York. During the twenty-nine years he has occupied the position of Park's Superintendent at Stockton, Mr. Jenkins has accomplished great things in a district that is naturally a cold one and does not enjoy a large measure of sunshine. Notwithstanding the many difficulties of climate and position, Mr. Jenkins annually provides a magnificent summer display which compares favourably with the work done in many public parks much further south. Mr. Jenkins is fortunate in having an appreciative Park's Committee, who thoroughly understand the difficulties to be overcome and ably assist him in his endeavours to bring brightness into the lives of many thousands who visit the parks of this northern town.



MR. W. A. JENKINS.

Chrysanthemum Show in April.—Strange as it may seem the Griqualand West Horticultural Society, Kimberley, South Africa is holding its autumn show on April 16th. Chrysanthemums will be the leading flower for which many classes are open for competition, both for cut blooms and specimen plants. Dahlias, Roses, Carnations, Gladioli and Ferns are other subjects which will be shown in the many competitive classes, and sections are set apart for amateur and professional gardeners, members of the Society and their children, as well as for lady competitors.

Honours for Belgian Horticulturists.—It is interesting to learn from our contemporary, *L'Horticulture Francaise*, that the order of "Officer du Mérite Agricole" has been bestowed upon M. Lucien de Cock, general secretary of the Société d'Agriculture et de Botanique de Gand, and M. Arthur de Smet, President of the Conseil Supérieur de l'Horticulture de Belgique.

Centenary of Dahlem Horticultural College.—The celebrated horticultural training school at Dahlem, near Berlin—formerly the Wildpark, Potsdam—is celebrating this year, from August 14 to 16, the hundredth anniversary of its foundation. Various festivities and excursions have been arranged, and the war memorial, to students of the college who fell in the war, is to be unveiled.

Duration of Germinating Power in Vegetable Seeds.—According to a table published in the *Seed Trade Buyers' Guide* of America, Lettuce seed will retain its germinating power over a period of six years; Cucumber, Endive, Musk, Melon and Water Melon seed over a period of five years; Beet, Brussels Sprouts, Cabbage, Cauliflower, Egg Plant, Kale, Pumpkin, Radish and Turnip seed over four years; and Asparagus, Dwarf Beans, Carrot, Celery, Sweet Corn, Kohl Rabi, Mustard, Peas, Spinach and Tomato seed over a period of three years. Parsley, Parsnip and Salsafy seed is said to be viable over only one year.

Earlham Hall.—The illustration on p. 189 (Fig. 78) presents a view in the gardens at Earlham Hall, near Norwich, where for so many years the late Mr. Sydney Morris exercised his horticultural genius to the great delight of his many friends and the pleasure of himself and family. This particular view shows part of the Hall, a bold herbaceous border, wide grass walk, and part of the sunk Rose garden, with its dry walls. The brick paths and corner steps are quaint and admirable features of the Rose garden at Earlham Hall, and, although Mr. Morris was very keenly interested in Montbretias, Primulas, Lilies, and rare and choice shrubs, he had also a great love for Roses. His garden was planned on generous lines, full of interest, pleasing, beautiful, and possessed an old-world touch of comfort, thus reflecting in so many ways the kindly spirit of its owner and maker now, alas, departed.

Trial of Daffodils at Wisley.—The Royal Horticultural Society will carry out a trial of the newer Daffodils at Wisley during the next season and raisers are invited to send not fewer than three nor more than six bulbs of each variety they wish included, to the Director, R.H.S. Gardens, Wisley, Ripley, Surrey (if by rail via Horsley Station, Southern Railway), to reach him by August 12, 1924, at the latest. Only one-nosed (or apparently one-nosed) bulbs can be accepted for the trial, and it is proposed to treat by the hot water method all bulbs received unless they are accompanied by a certificate stating that they have already been so treated. The plants will be grown for two years or until it is possible to form a sound judgment upon their merit. At the end of the trial (which will not necessarily be at the same time for all varieties and which will be announced to senders), but not before, senders will be able, on request, to receive back the whole (or part, at their option) of the bulbs resulting from (or left after) the planting of the bulbs they sent to Wisley, but they will not be entitled to claim them after the end of September in the year in which the trial concludes.

Imperial Botanical Conference.—The preliminary programme of the Imperial Botanical Conference, which will be held at the Imperial College of Science and Technology from July 7 to July 16, has recently been issued, and contains a list of the various subjects which will be discussed. The subjects are classified under five sections, and deal with 1, systematic botany and ecology; 2, genetics; 3, plant physiology; 4, plant pathology; 5, education and research; and 6, miscellaneous. Papers will be delivered on these subjects by eminent botanists of this country and from overseas. Excursions to many botanic gardens and experimental stations have also been arranged. The subscription for attending the Conference is one pound, and those intending to be present may obtain particulars from the Secretary, Mr. F. T. Brooks, 31, Tenison Avenue, Cambridge. The issue of special tickets for students is under consideration.

Appointments for the Ensuing Week.—Sunday, April 6: Wakefield and Northern Tulip Society's meeting. Monday, April 7: Reading and District Mutual Improvement Association's lecture. Tuesday, April 8: Jersey Gardeners' Society's meeting; Royal Horticultural Society's Committees meet (2 days). Wednesday, April 9: Huntingdonshire Daffodil Society's show; Royal Horticultural Society of Ireland Show (2 days); East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting; Wimbledon Gardeners' Mutual Improvement Society's meeting. Friday, April 11: National Rose Society's show at R.H.S. Hall; Royal Caledonian Horticultural Society's show (2 days); Orchid Club's meeting. Saturday, April 12: Newcastle and District Mutual Improvement Society's spring show.

"Gardeners' Chronicle Seventy-five Years Ago.—*The Royal Garden at Frogmore.*—The Royal Garden at Frogmore will now be seen to be worthy of a great country and not an inapt representation of the genius of England, where solidity and utility are so much preferred to brilliancy and decoration. The houses are not to be regarded as examples of architectural skill; they are something far better. They are buildings admirably constructed for the purpose they have to serve; large and roomy, yet not too large; capitally put together, without regard to a pennywise economy; fitted with good mechanical contrivances to diminish needless labour, and heated in a manner not to be surpassed. And there is no want of beauty in the place. The terrace walk, nearly 400 yards long, running in front of the irregular line of forcing houses, with a pretty cottage in the centre, partially fitted up for the reception of Her Majesty and the Prince, and bounded on the south by a low parapet wall, decorated with vases and supported by groups of flowers, is in itself a fine object. Its dimensions would, of themselves, produce a grand effect, even if all that surrounds it were in a state of less perfect keeping. But the interior of the Castle itself cannot be in more admirable order, or more scrupulously neat, than is everything that meets the eye at Frogmore. The ground work was commenced about December, 1841, and the buildings in the following summer, under the very efficient superintendence of Mr. Ingram, who has brought the establishment to its present high state of cultivation. The cost of this garden (about £40,000) may appear large to those who are not conversant with such matters. But in reality the expense is below what we should have supposed such a garden could be constructed for. It is to be remembered that it was an open field, without even a brick wall or a fence, or drainage, and that everything had to be constructed upon the best principles and in the most permanent manner. It must also be borne in mind that it replaces no fewer than eight royal gardens, namely, Kensington, Kew, Hampton Court, Cumberland Lodge, Cranbourne, the old Frogmore, Maestricht and the King's Lodge. *Gard. Chron., April* 7, 1849.

BULB GARDEN.

PUSCHKINIA SCILLOIDES.

This is the best-known member of a small genus of Scilla-like bulbous plants native of the sub-alpine regions of Asia Minor and the Levant. P. scilloides flowers in March or April, producing a four-inch spike of beautiful china-blue flowers lined with a darker shade. It is hardy in light, gritty soil that has sufficient depth to enable one to plant the bulbs at least five inches deep. The variety known as compacta is considered an improvement on the type.

P. libanotica, though less often seen, is hardier than the foregoing, less fastidious as to soil and has larger flowers. All these plants enjoy full exposure to sunshine. *J.*

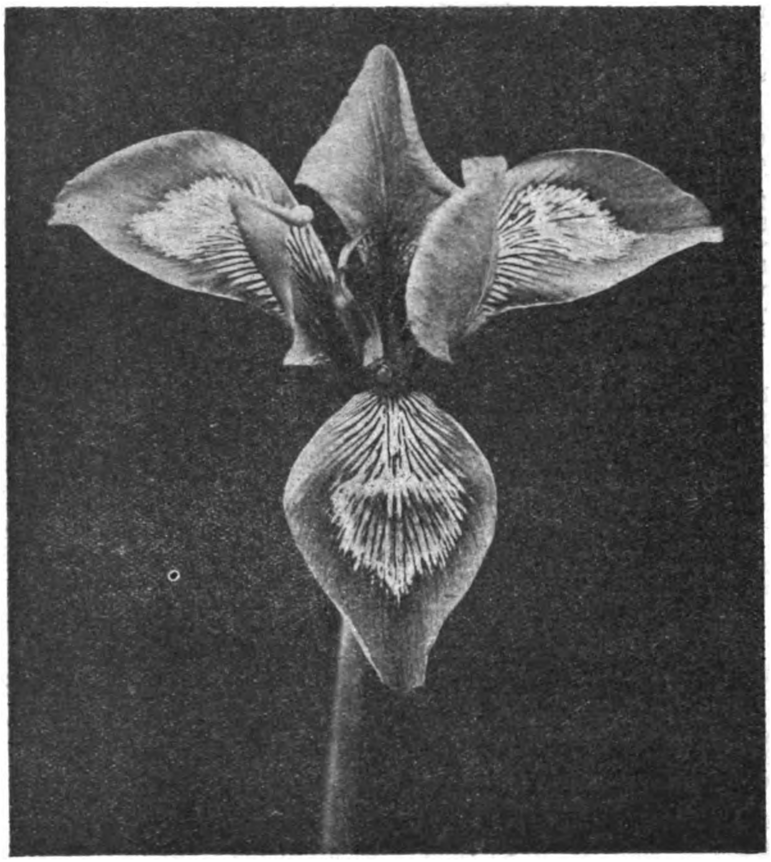


FIG. 76.—IRIS UNGUICULARIS VAR. PEACOCK; R.H.S. AWARD OF MERIT, MARCH 25 (SEE P. 181).

THE SEEDING OF SNOWDROPS.

Concerning *Formakin's* recent article on Snowdrops (*Gard. Chron.*, March 22, p. 160), in which he questions their increase by seed, I may state that here the flowers set seed fairly freely and the writer has grown young plants from the seed contained in them.

After blooming, the flower stalk (peduncle) lengthens to about a foot and assumes a prone position. The capsule swells to the size of a small Gooseberry, though not so rotund, and when ripe takes on a yellow colour. It does not, however, become hard and dry, but bursts, in the ground, while still succulent. Can it be that the fruit (using the term in the botanical sense) is in the process of becoming a berry? There are only a few seeds to a capsule.

Apparently the seeds are deposited in the ground at a distance from the parent plant equal to the length of the peduncle. In this manner, given favourable conditions, the plant can very gradually spread itself. From memory, I think the Snowdrop flowers the third year from seed. It provides the first year a single, small, non-glaucous leaf, the second year one or two larger leaves, and the third year the usual twin, glaucous leaves with a flower between. Consequently it will take a single plant some years to extend a yard or two.

Considering the sticky nature of the seeds, might they not adhere to animals and so be distributed to a greater distance? A hasty consultation of botanical books fails to supply any information on this point. Perhaps some reader of the *Gardeners' Chronicle* may be able to throw further light on the subject of the seeding of the Snowdrop. No great accuracy is claimed for the observations here given, as they are from memory and not from notes taken down at the time. *John Parkin, The Gill, Brayton, Cumberland.*

NARCISSUS PSEUDO-NARCISSUS MINOR.

This variety of Narcissus pseudo-Narcissus is smaller in all its parts than the type and does not grow more than six or eight inches tall, with leaves about four inches long. The flowers are from two to three inches in length and of a delightful golden yellow colour, resembling a miniature Golden Spur. The plant will grow freely in almost any soil or situation, and is most happily placed in the rock garden at a sufficiently high elevation for the beautiful little "trumpets" to be appreciated.

The form known as minimus is, as the name suggests, even smaller than minor, and is withal a delightful little plant; the tiny trumpet is more fimbriated than in minor and there are distinct traces of lighter shading to the flower.

These tiny Narcissi are delightful early-flowering bulbs and give a welcome patch of colour to the rock garden in March; grown in the alpine house they are very pretty.

Both these Daffodils are natives of Southern Europe. *Ralph E. Arnold.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Thunias.—Thunias produce their racemes of flowers from the apex of the young growths, usually about the middle of May. Well-flowered specimens make handsome plants and are extremely useful for decorative purposes, consequently they deserve every attention. These plants should be potted annually, and the work should be done as soon as they commence to grow afresh, when they should be shaken out of the old compost and the dead roots shortened to within an inch or two of the base. The usual practice is to plant seven or eight of the strongest stems together in a 7-inch pot or three or four stems may be placed in one of 32-size. The receptacle should be nearly half filled with clean crocks, placing a layer of the coarsest portions of the compost over them and the rest of the space filled with rooting medium, consisting of good fibrous loam, from which all the earthy particles have been shaken out, Osmunda fibre and Sphagnum-moss in equal proportions. The materials should be cut into rather short portions and thoroughly mixed, adding sufficient crushed crocks and silver sand to ensure porosity. Pot moderately firmly, placing the bases of the young growths on the compost, and secure each stem firmly to a neat stick. Place the plants in the lightest position possible in the warmest house, as, whilst growing actively, they require plenty of heat and moisture; place the tips of the old stems near to the roof-glass. These conditions are condusive to the development of short, stout pseudo-bulbs and favour free flowering. The young growths revel in moderate sunshine, but the plants should be thinly shaded during the middle of very bright days for a time after they have been repotted and until the growths have started freely and plenty of new roots formed. Water should be afforded sparingly, but afterwards it may be supplied freely, and when the shoots have become well established an occasional application of weak liquid cow manure will be an advantage. The foliage should be syringed whilst the plants are growing actively, as Thunias are subject to attacks of red spider.

Anguloa.—Anguloas such as A. uniflora, A. Ruckeri and A. Cliftonii, are becoming active after their season of rest, and any necessary re-potting should be attended to at once. They are strong-rooting plants, and require a substantial compost. A mixture similar to that advised for Thunias is suitable. Place sufficient crocks in the bottom of the pot to ensure efficient drainage and press the compost firmly among the roots. Anguloas should be grown in a light position in the intermediate house.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Spring Bedding.—Where frosts and thaws have had the effect of raising plants these should be firmly pressed into position. Carpeting plants, such as Arabis, Aubrietias, Pansies and Violas, have made but little growth owing to the abnormally cold weather. Stirring of the surface soil is beneficial and should be practised at frequent intervals to encourage growth.

Hardy Ferns.—These attractive and interesting plants thrive in moist, shady situations, and need little attention except at the present season. The removal of dead fronds and any accumulated rubbish and weeds should now be done before the unfolding of the new fronds takes place. Established plants will derive great benefit from a liberal top dressing of rich compost.

Ivy.—Ivy clothing buildings should receive its annual trimming at this season. Cut the climber as closely to the wall as possible and the surface will soon become green again with young foliage.

Eremurus.—In spite of the cold weather growths of this plant are well advanced, and it will be wise to protect them lightly with Spruce boughs during frosty weather, or the growing points may be damaged.

Nepeta Mussinii.—The alluring grey foliage, charming lavender flower spikes and long season of flowering combine to make this a most useful, decorative plant. Where increased stock is required the present is a suitable time to lift and divide the clumps, replanting the pieces directly into their new flowering quarters. Although a sun-loving plant, it also succeeds and flowers in partially shaded positions.

Salvia.—Early struck cuttings of Salvia splendens and the variety Pride of Zurich need transferring to larger pots. These plants are growing and soon become pot-bound and stunted if not given early attention. If further stock is required another batch of cuttings may still be inserted. S. patens is remarkable for its deep blue, velvet flowers which remain in beauty all the summer, and is indispensable for the blue border. On light, dry soils, it sometimes survives the winter if protected with ashes, but it is safer to lift and store the tubers in a frost-free structure. These plants may be grown on in boxes or pots under cool conditions and planted out later. Cuttings inserted now will readily form roots.

PLANTS UNDER GLASS.

By F. J. Clark, Gardener to Lt.-Col. Sir George Holford, Westonbirt, Tetbury, Gloucestershire.

Salvia splendens grandiflora.—This Sage is a fine plant for making a bright display in the conservatory from October onwards. Cuttings will root readily in a propagating frame in a warm greenhouse. The young plants should be potted on as soon as they are well rooted and they should never be allowed to get into a starved condition. They should receive greenhouse or frame accommodation up to their final potting, which should be in seven-inch or eight-inch pots. The plant is a gross feeder and a rich soil should be used after the final potting; similar compost to that used for the final potting of Chrysanthemums will suit them. After the final potting the plants should be grown out-of-doors on an ash base. During late summer and autumn the plants should be fed liberally with soot water and liquid manure. The points of the growths should be pinched out regularly up to six weeks or so before the time when they will be required to flower. A batch of cuttings may be inserted at the end of May to produce plants for Christmas flowering.

Moschosma riparium—This greenhouse plant bears graceful panicles of tiny white flowers and is useful for associating with Salvia splendens. It is readily propagated by cuttings, and will respond to much the same treatment as the Salvia, except that it should have the protection of a frame throughout the summer; pots six inches in diameter will be large enough at the final potting; the plant is by no means so gross a feeder as the Salvia.

Libonia floribunda.—This is another useful winter-flowering plant and, when well grown, produces its pretty scarlet, yellow tipped tubular flowers in profusion. I prefer to give this plant warm greenhouse treatment in its early stages of growth, gradually providing cooler conditions up to the final potting. These cuttings may be rooted in a thumb pot and be grown on intact; a five-inch pot used at the final potting will be large enough. The plants should be pinched at intervals to promote a bushy habit. During late summer they should occupy a cold frame and should be afforded treatment calculated to produce sturdy and well ripened growths. The syringe should be used freely to guard against attacks of red spider. Frequent application of weak liquid manure and soot water will tend to keep the plants healthy and vigorous. After flowerering they may be rested for a time, cut back during the spring and be grown on for another year.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Melons.—Melons that were planted out as advised in a previous calendar will now be developing the embryo fruits; when flowering commences slightly increase the temperature of the house to 70° by night and 80° by day and resort to hand pollination. Remove all redundant male flowers. It is not advisable to allow all the fruits to swell to maturity. Two Melons will be found sufficient to each plant at this season of the year. These remarks apply to Melons grown on the cordon system to furnish an early supply of fruit. Where a distance of only 15 inches was allowed between each plant, the space for the lateral will be limited and close pinching of the same will be necessary. The laterals should be stopped at one leaf beyond the fruit and all succeeding spray growths removed. When the required number of fruits is set feed the plants with weak liquid manure after first warming it to the temperature of the house, and increase the humidity of the latter by more frequent damping of the paths and walls. Top-dressing the roots with a mixture of loam, mortar-rubble and bone meal will greatly benefit the plants when they are swelling their fruits. Watch carefully for green Aphis and take immediate steps to eradicate this pest either by spraying with a specific or by fumigating the house. When the fruits are swelling they should be supported by nets fastened to the trellis. Young growths that appear should be carefully removed, but the mature foliage which will assist the flavour of the fruit should be retained as long as possible.

Successional Plants.—Melons raised from a later sowing may be planted out for maintaining a succession of fruit. The soil for this planting may be heavier in texture with less leaf mould added than that recommended for the earlier crop, and may consist of good loam with old mortar rubble and some bone meal added. The soil should be made firm with a rammer provided its condition will permit of this being done. With the increase of sun heat these plants should grow more freely than the early planted ones. The house should be closed sufficiently early to raise the temperature 90° on all bright days with plenty of moisture to increase the atmospheric humidity.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Hoeing.—Advantage should be taken of dry weather to use the Dutch hoe, for hoeing not only destroys weeds but assists in aerating the soil, thus allowing the sun's warmth to reach the roots, and hasten growth. When late frosts prevail the advantage of hoeing is clearly seen, especially in the case of bush fruits, which, if well supplied with healthy foliage at blooming time, will come through cold weather with less damage to the blossom. When hoeing through Gooseberry plantations keep a sharp watch for caterpillars and, if any are seen, pick them off and destroy them before they can cause damage.

Black Currants.—Every effort should be made to keep down the mite which causes big bud. Pick off any buds that are infested, and continue to spray the bushes with lime and sulphur, as advised in a previous calendar.

Apple Aphis.—A sharp watch should be kept on Apple trees that are just unfolding their leaves for the presence of this pest. If any aphides are detected, spray the trees with nicotine emulsion at once and do not wait to do so until the leaves curl. Spray again just before the blossom opens to catch any insects on the stalks of the flowers.

Mildew.—Sometimes in extremes of weather during the spring, mildew makes its appearance in the fruit garden and especially on Strawberry plants. As soon as detected, syringe the plants with a proprietary wash, or prepare a mixture of one ounce of sulphide of potassium to three gallons of soft water. This specific if applied thoroughly will usually check the spread of mildew at this season.

THE KITCHEN GARDEN.

By Walter Y. Staward, Gardener to Mrs. John Feeney, The Moat, Berkswell, Warwickshire.

Cauliflowers.—Plants raised from seed sown in pots some time since are ready for pricking out into a frame. A good layer of decayed manure should be placed in the frame and this in turn covered with three to four inches of good soil. If the soil is fairly moist at the time they are transplanted the plants will not require watering for a few days. Close the frame and shade the glass for a day or two then gradually admit a little air, and increase the amount as the plants get larger, until finally the light should be moved entirely.

Brussels Sprouts.—Early plants of Brussels Sprouts in boxes should be placed in full exposure to sunshine to harden them off before planting them in the open. The ground should be prepared ready to receive the plants when they are well hardened. The date of planting varies according to the district; where frost may occur late in the spring it is wise to plant late.

Tomatos.—Tomato plants intended for growing out-of-doors are ready for shifting into pots one size larger than they are occupying. On bright days let them have plenty of air to harden them preparatory to planting.

Onions.—Where large bulbs are required the ground should be forked over and afterwards made level. In the meantime, the plants should be well exposed to the light and air to harden them preparatory to setting them in the ground when circumstances are favourable.

Seed Sowing.—Make further sowings of Peas, Spinach, Radish, Mustard and Cress, and a late sowing of Broad Beans for successional cropping.

Marrows and Cucumbers.—A few seeds of both Marrows and Cucumbers should be placed in pots and germinated in a warm frame.

Carrots.—The ground where the main crop of Carrots is to be grown should be made fine by the rake, removing all stones. Choose ground that has been well tilled and with plenty of light sandy soil in it. The rows may be made fifteen inches apart and the seed sown evenly along them.

Turnips.—Seeds of Turnips may be sown on a warm border for the earliest supply, choosing a quick-growing variety. Sow the seeds evenly and not too thickly in drills made from one foot to fourteen inches apart. As soon as the seedlings are through the ground give them a liberal dusting of soot to ward off the Turnip fly, or sprinkle them with fine wood ashes at intervals.

Early Lettuces.—As soon as seedling Lettuces are large enough to handle they should be pricked out on a warm south border. If slugs are troublesome, a dusting of soot will act as a deterrent for a time, and its application should be continued at intervals until the plants are large.

HARDY FLOWER BORDER.

HUNNEMANNIA FUMARIAEFOLIA.

Although this beautiful perennial, which is a native of Mexico, can only be relied upon to survive our winters in favoured districts, it may be treated as an annual with much satisfaction. The seed should be sown thinly in May in groups, in light, warm soil in full sun and the seedlings thinned to about eight inches appart. In habit and general appearance H. fumariaefolia closely resembles Eschscholzia californica, but it is more upright in growth, the very glaucous leaves are more finely-cut and the flowers open flat.

These beautiful blossoms are nearly three inches across, of a lovely orange yellow and, unlike most of those of the Poppy family, they last for a long while. The flowering season of plants raised as suggested extends from August well into autumn. *A. T. J.*

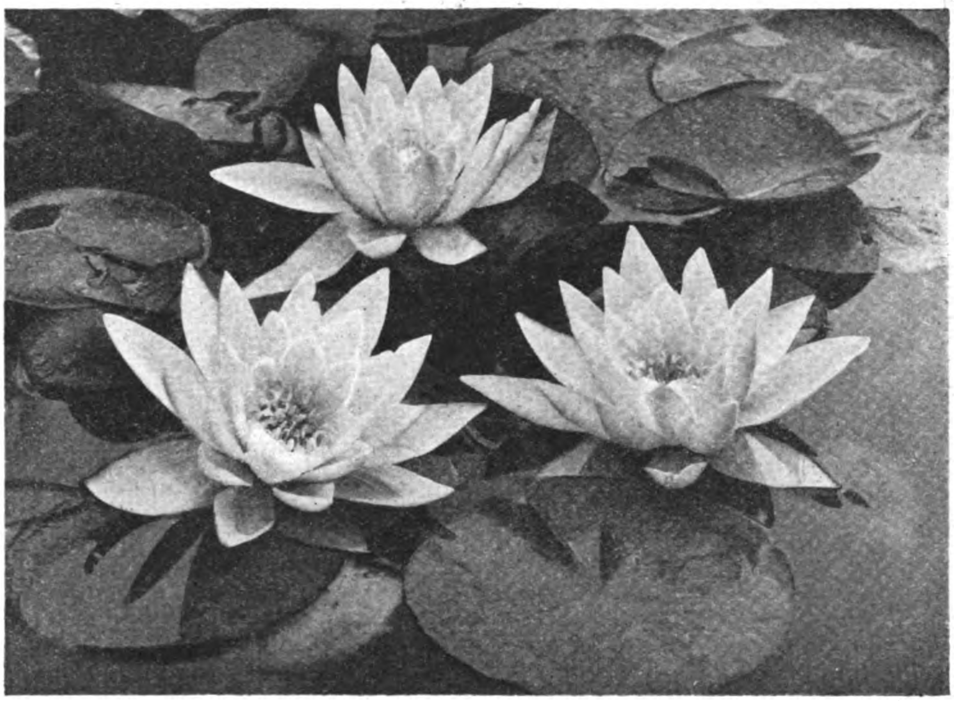


FIG. 77.—NYMPHAEA COLOSSEA (SEE P. 193).

HEMEROCALLIS.

For general effect, and when grouped in bold masses the Day Lily, as Hemerocallis is popularly known, is undoubtedly one of the most noble of hardy herbaceous perennials. The flower has been greatly improved of late years by the raising of new hybrids which are worthy of inclusion in all choice collections. Although the individual flowers are of short duration, the upright, stout spikes are freely produced, each bearing an abundance of buds which open successionally, and by a judicious selection from the numerous varieties a continued display may be maintained from the end of May to October.

All the hybrids are perfectly hardy, and thrive in fairly moist, ordinary soil, in full sun or partial shade, and are also excellent for associating with bog-loving plants or for planting by lakes and streams. Half-a-dozen or so of the finest hybrids are: Apricot, rich apricot yellow, large flowers 3 feet; Aureole, large, well expanded orange yellow flowers; a very effective variety 3 feet; Citrina, large, sweet-scented flowers of a clear citron shade, on stout spikes, 4 feet tall, a very free-flowering variety; Dr. Regal, clear rich yellow, large, Lily-like flowers, height 3 to 4 feet; May Queen, a very early sort, with flowers of medium size and of a pretty shade of orange, 3½ feet; ochroleuca, a plant bearing stout, rigid spikes of large, well expanded, pale yellow flowers, in bloom until September and October, 4 feet; Sir Michael Foster, of recent introduction, a large, clear yellow flower, 4 feet. Sovereign, the medium-sized flowers are rich orange yellow and highly scented, 2½ feet.

The best of the older species and varieties are aurantiaca major, deep orange; Baroni, large, clear citron-coloured flowers; Dumortieri, very dwarf, flowers orange; fulva, rich terra-cotta flowers; flava, rich golden yellow, very fragrant flowers; Kwanso plena, large double flowers, of a rich terra-cotta shade; Middendorfii, rich orange shade, and Thunbergii, of medium height, late in blooming with golden yellow flowers. The Hemerocallis also make excellent pot plants for conservatory decoration. *W. Logan.*

PLANT NOTES.

VANCOUVERIA HEXANDRA.

This is a most delightful plant, closely allied to Epimedium, making a somewhat sparse growth of herbaceous leafage some six inches in height.

The leaflets are narrowly oval or palette-shaped, a soft, bright green, and they are daintily poised on thin and elegant stalks. Above these, in summer, rise to about a height of about ten inches, the flower stems, which branch into airy candelabras, bearing at their extended tips little waxen, ivory-white stars of singular delicacy.

V. hexandra delights in a cool, free loam, preferably in half-shade, and in such conditions it is by no means hard to establish. Where the soil is poor and sandy, it should be rendered more retentive by the addition of peat or leaf-mould. A shady nook in the rock garden, or a suitable place in the woodland, can hardly be occupied by a more attractive plant than this Vancouveria.

The plant is a native of North America, and derives its name from Fort Vancouver, California. It is sometimes known in gardens as Epimedium hexandrum. *T.*

TREES AND SHRUBS.

VIBURNUM RHYTIDOPHYLLUM.

(Supplementary Illustration).

Notwithstanding its distinctivness and the interest attaching to its introduction by Mr. E. H. Wilson in 1900, when he was collecting for Messrs. James Veitch and Sons, Viburnum rhytidophyllum has not achieved that popularity which it bid fair to enjoy when first exhibited. In the text accompanying the figure of this species in the July issue of the *Botanical Magazine* for 1911, tab. 8382, appears the following note:—"Viburnum rhytidophyllum is one of the most remarkable shrubs which the recent exploration of Western China has given to gardens. It is perfectly evergreen, but of a type very distinct from any evergreen species in the genus, resembling more, in its excessively wrinkled leaves, the species of the "Lantana" group. It is, however, absolutely different from those of any other Viburnum, and is, indeed, one of the best marked of all shrubs in cultivation."

Notwithstanding this encomium, Viburnum rhytidophyllum has not fully come up to aerly expectations, and if planted in a cold, wind-swept position its fine leaves become ragged and the specimen presents a somewhat bedraggled and sorry appearance. Under kindlier conditions of climate and position it is an attractive evergreen shrub by reason of its large, wrinkled and shining leaves, while in autumn its attractiveness is enhanced by the brilliant red fruits which eventually become black, like oval beads of polished jet. The flowers are not without attractiveness when they open in pleasant weather in May or June and their colour is usually creamy white. The inflorescence is terminal, usually four-branched, making up a rounded head. This forms in the autumn and persists throughout the winter, the flowers expanding in the late spring or early summer, as already indicated. The illustration in the Supplement plate presented with this issue, shows a flowering branch of this native of central and western China, and from this it will be readily understood that grown under favourable conditions, Viburnum rhytidophyllum will take fairly high rank as a flowering shrub, but, as in the case of Bamboos, it is more or less useless to plant it where it is exposed to cold, cutting winds, especially if at the same time its roots are in a cold soil.

It is, however, as a foliage plant and for the beauty of its fruits in autumn that this species commends itself to garden lovers, and it may be observed that the First-Class Certificate of the Royal Horticultural Society was awarded it in September (1907), at a period when the numerous fruits, each about a third-of-an-inch long, were of a bright red hue. *C.*

PHYLLOTHAMNUS ERECTUS.

Formerly known as Bryanthus erectus, this choice little evergreen is a hybrid raised many years ago at the Comely Bank Nurseries, Edinburgh. Its origin is reputed to be a cross between Rhodothamnus Chamaecistus and Phyllodoce coerulea, but it bears so close a resemblance in many of its features to P. empetriformis that one might well be led to believe that species to be one of its parents.

However that may be there is no more distinct subject of its kind. It is singularly beautiful in foliage and flower and has a good constitution. With us it makes a somewhat dense bush of about 8 inches, the erect branches being crowded with the linear, glossy-green leaves of the Phyllodoce (Bryanthus) type, these being rather more than half-an-inch long.

The flowers, which appear in early April, are borne singly in terminal clusters; they are a beautiful clear rose, the calyx and stalks being crimson. These blossoms differ from those of most of the dwarf Ericaceous shrubs in being bell-shaped, or open at the mouth, which is split into five segments like an Azalea. P. erectus does very well here in cool loam intermixed with leaf mould, with full exposure and a somewhat northerly aspect. *N. Wales.*

THE ROMNEYAS.

There are two species of Romneya, the well-known R. Coulteri introduced in 1875 and R. trichocalyx discovered in 1898 in the south of California. This last is a distinct and much better species, although often confused with the former. It has stronger growth, a robust stem, is always erect, and has deeply pinnatifid and glaucous leaves—those near the flower being divided—while the calyx is very villose. The flowers are much bigger than those of R. Coulteri and have no scent, or at least the odour is quite different, and the stamens are light yellow instead of being orange-coloured. In the *Proceedings of the California Academy* for 1898, Brandegree states "R trichocalyx, in a much greater degree than Coulteri, spreads by underground stems which extend 30 to 40 feet from the parent plant in all directions; along these stems shoots arise at intervals, often a half-dozen together, forming clumps that in time rival the parent. Roots appear to form very slowly and these clumps are often of considerable size before they are found. The shoots, even when several feet high, are very easily pulled, but the subterranean stem promptly sends up a fresh supply in the same spot."

The underground stems have traversed a deep wall here and entered a greenhouse, where the growths flowered; how can the plant be increased by these stems or roots? The difficulty is that they very seldom take root after transplantation of the stems or cuttings. Some eight years ago I planted the two kinds on a very sunny terrace at Sierre (Valais) in the driest part of Switzerland; and also planted a hybrid from them. The three plants succeeded very well and are now extraordinarily exuberant, growing everywhere and becoming very troublesome, as is R. Coulteri at La Mortola, where it invades quite a goodly portion of the garden. R. Coulteri has also invaded the garden at Sierre, but as the three plants were far apart they did not suffer. R. trichocalyx soon became a real weed, its roots invading the whole place. The hybrid is the strongest of all, but its seeds are difficult to germinate and when they do so it is very difficult to keep the young seedlings healthy. I have now three pots of seedlings of the two species and of the hybrid. But while the seedlings of the parents are looking well, the hybrid seedlings are weak, although the parent plant at Sierre is the strongest of the three. The seedlings frequently disappear when they make their first rough leaves. On the Sierre terrace (Castle Mercier) one may see from some distance (from the railway line) the big bushes of Romneyas, resplendent in the sun, from June to December. Here, at Geneva, the plant is rather dull if not planted against a wall facing south, but they all flower well until December, so long as we have no fog. *H. Correvon, Floraire, Geneva.*

ANNUALS FOR GREENHOUSE AND CONSERVATORY DECORATION.

COREOPSIS (SYN. CALLIOPSIS).

Two species of hardy annual Coreopsis are great favourites for furnishing a supply of cut flowers. C. Drummondii has orange-yellow flowers, and generally grows about one foot in height. The other species, C. tinctoria, with yellow and crimson-brown flowers, is about two feet tall; there are several dwarf varieties of this species generally growing about nine inches high and this dwarf habit makes them specially useful for pot culture. They are sometimes offered under different colours, such as crimson, crimson and gold, etc., while other seed establishments offer them under varietal names, such as Beauty, Crimson King, and Star of Fire; one of the more recent introductions, The Garnet, has very brilliant crimson-scarlet flowers, produced in wonderful profusion.

For plants in pots seed may be sown in cold frames about the middle of September, and again during January: the sowing is best made in a cool, airy greenhouse. If it is desired to grow plants for autumn flowering, a sowing may be made in cold frames towards the end of June. The plants should be grown singly in the pots and while good examples of the dwarf varieties may be produced in 48-sized pots, it generally pays to grow them on in six-inch pots, as larger and stronger plants are then produced, and they last longer in flower. Beyond growing them under perfectly cool conditions, their successful cultivation does not differ from other plants of this class. *J. Coutts.*

ALPINE GARDEN.

MODIOLASTRUM GERANIOIDES.

It is many years since I first grew this little trailing rock plant, which does not appear to be popular with many of the nurserymen, as it only makes its appearance in catalogues in a spasmodic manner. I do not think that this is surprising as I have never found it very permanent in the garden, even when planted in a specially favoured spot which its Chilian origin would seem to call for.

I would not like to confess how many times I have had and lost it. It might survive for a year or two, but eventually the fate of every plant was the same, and one can only suggest it for the consideration of those in specially genial districts; I know that it will withstand the winters in some highly favoured gardens.

Its nomenclature is somewhat obscure. I first obtained it as Modiola geranioides, and was later informed that its true name should be Malvastrum Gilliesii. Mr. Reginald Farrer called it Modiola geranioides, but I prefer to follow the invaluable Kew *Handlist* and call it Modiolastrum geranioides. It belongs to the Mallowworts and has prostrate, slender branches with neat, divided leaves and wonderfully large flowers of a kind of Cherry crimson.

The plant should, I think, be grown in a flattish place in the rock garden in dry, well drained soil, so that no water stands about it in winter, and in the sunniest spot available. Even then, were I to try it again, as I hope to do, I would protect it with a sheet of glass during the months from September to March or even April. Seeds of this plant do not seem to be obtainable, but pegging down the branches and severing them from the parent plant when they have formed roots may be practised as a method of propagation. *S. Arnott.*

INDOOR PLANTS.

CALADIUMS.

Caladiums have been greatly improved by hybridisation and self-fertilisation within the past few years, and they rank amongst the most beautiful of all foliage plants. They are invaluable arranged in miscellaneous groups at exhibitions and make a grand display when staged by themselves; they are also valuable for the decoration of the warm conservatory. They may be used in a dwelling house, provided they are grown in comparatively cool conditions for a few days before being put to this purpose.

The plants are easily cultivated in an ordinary stove with a night temperature, when growing actively, of from 60° to 70°, and the atmosphere should be kept moist. Arrange the plants as near the roof glass as possible, and shade them only when the sun is very strong, as sunshine is beneficial to them. They should be started during January and February in a mixture composed of equal parts of rich, turfy loam and fibrous peat, with silver sand and a small quantity of decayed cow manure added. Water the roots sparingly until the foliage is partially developed, at which stage they will need, provided they are well rooted, a liberal supply of moisture and a little liquid manure once or twice weekly. Repot the plants on one or two occasions during their growing season, but be careful not to over-pot them.

If specimen plants are required for exhibition or other decorative purposes, select three or five of the strongest plants when they have started fairly into growth and place them together in large pans or pots, allowing them plenty of space for root development. They will soon grow into good specimens.

When the foliage shows signs of decay in the autumn, water should be withheld from the roots gradually and the plants rested in a cooler and drier atmosphere. When the tubers are properly matured withhold water altogether. The plants may then be placed in their pots under a dry stage in a house having a temperature of about 55° to 60° during the winter, or they may be shaken out and stored in pans or trays in dry sand, or cocoa-nut fibre, slightly moistened, to prevent them from shrivelling. From time to time they will need to be examined to see that none is decaying or affected with what is termed "dry rot," because if neglected one solitary tuber will soon affect the others.

One advantage in cultivating Caladiums is that they do not occupy valuable room in the houses during the winter, and their space may be filled with other plants. They are of easy cultivation, provided they are given suitable heat and not given too much water when they are starting into growth. The stock may be increased readily by seed or by dividing the roots when potting the plants in the spring, also by cutting the young tubers into portions when they commence to grow.

The cut portions of the tubers should be placed in small pots, after placing a small quantity of fine charcoal or dry sand over the cut surface to prevent "bleeding." Plunge the pots in a frame with moderate bottom heat; do not give the soil much moisture until the plants have commenced to develop, and admit a little air in the frame.

There are many exceedingly beautiful, dwarf, compact - habited Caladiums suitable for general purposes.

Those following are amongst the best for general use: C. argyrites, a very dwarf and compact species, most useful for edging miscellaneous groups of indoor plants. The foliage is small, coloured green and white, and very attactive. C. minus erubescens is a very distinct variety with dark red foliage, and makes a companion to C. argyrites: this also is invaluable for edging groups. C. Gaspard Crayer is a variety with a deep crimson centre to the leaf, which has a green margin; the plant is a strong grower and develops fine foliage. C. Reine de Denmark is a pale rose-coloured variety with crimson-carmine veins; it is a beautiful Caladium. C. Prince of Wales has golden-yellow leaves that are very showy and distinct. C. Lady Mosley has rose-carmine foliage with bright red veins. C. Candidum, with white and green foliage, is one of the best Caladiums for general purposes, whilst C. Golden King is one of the finest of all the yellow-leaved varieties. C. Exquisite has a dwarf habit and bright red-carmine leaves. C. Dorothy Peto has a pink centre to the foliage, with a bright green border; it is very distinct. C. Assungay has large, transparent leaves suffused with deep rose-pink. C. Rose Laing is another choice variety, the leaves having a creamy-white ground suffused with pale blue. There are many other fine, distinct varieties, but those described are some of the best. *John Heal, V.M.H.*

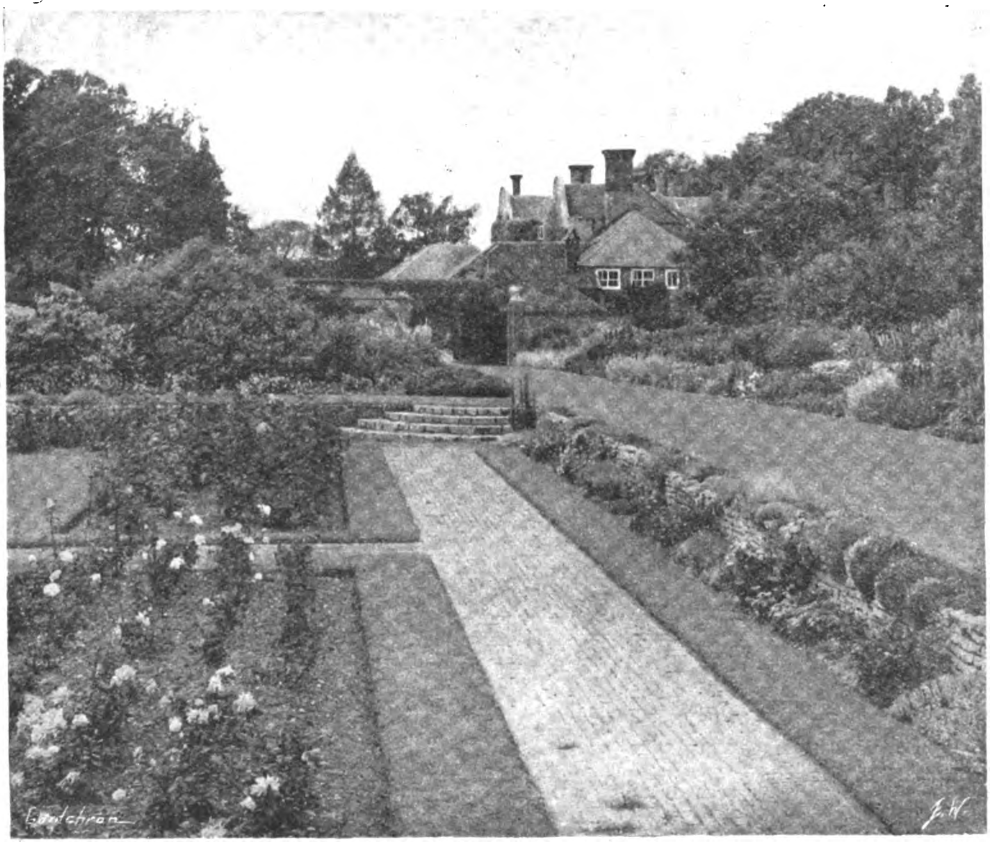


FIG. 78.—THE SUNK ROSE GARDEN AT EARLHAM HALL (SEE P. 184).

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

ON page 160, *Formakin* expresses doubt whether I am correct in describing Snowdrops as increasing from self-sown seed. If he will give me the pleasure of a visit here in May I will show him myriads of swollen green capsules. In such a season as we have been passing through, the seed in these capsules must be self-fertilised, for no bee could venture forth to face the bitter cold of February and March. Only once, in a long and fairly watchful experience, have I seen a few bees busy among the chill Snowdrop bells, as noted many years ago. Tennyson, most vigilant observer of wild life, seems never to have seen the like, for in his *Progress of Spring*, he paints this pretty picture—

> "The ground flame of the crocus breaks the
> mould,
> Fair Spring slides hither o'er the southern
> sea;
> Wavers on her thin stem the Snowdrop cold,
> That trembles not to kisses of the bee."

The late Lord Avebury gave much attention to the frutification of British wild flowers, and has the following note about the Snowdrop:—

"The pistil is longer than the stamens. Sprengel found that nectar was secreted by the green parts of the perianth, and this has been confirmed by Delpino and Knuth. It is not, however, abundant, the flowers are visited principally by hive bees. . . . The anthers form a cone and terminate in rigid points which can hardly fail to be touched by the bee, which thus shakes the stamens so that some of the pollen drops down. In the absence of insect visits the filaments relax, the anthers separate, and some of the pollen drops on the viscid stigma."—(*British Flowering Plants*, p. 416).

I am confident that in an ordinary season insect fertilisation of Snowdrops must be in the last degree exceptional in our northern district.

Formakin raises the question whether the Snowdrop is indigenous to Great Britain. In Bentham's *British Flora, cura Hooker fil.*, it is pronounced to be "probably not indigenous, but long cultivated, and now naturalised in England, Scotland, and Ireland."

There has been some correspondence of late in the horticultural press about rabbit-proof plants. Evil beast, as all good gardeners must deem the rabbit, luckily it is possible to fence him out of the flower garden and kitchen ground. Not so the pheasant, and the damage wrought upon early blossom by a cock pheasant and his hareem is most exasperating. Among the earliest and brightest of spring flowers are the Lungworts, Pulmonaria saccharata and P. angustifolia azurea. Give them half a chance, and they should be sheeted with their pretty pink and blue blossoms during mid-March.

We have great breadths of them at Monreith; but every speck of colour has been reft from them by the powerful bills of marauding pheasants. Needless to say, every yellow Crocus has gone the same way, though the purple and white ones are spared; and, fortunately, these birds have no use for any species of Squill or Narcissus. But they have not left a single flower on an edging of Saxifraga apiculata.

It is always good to note happy combinations of colour as the season passes on, for memory is a treacherous prompter at planting time. One of the simplest and most effective is just coming to its best, namely, a circular bed bordered with Narcissus minor with an inner ring of Scilla siberica. Such an arrangement is quite permanent, improving every year, for no matter how crowded the bulbs become, even thrusting each other out of the ground, no stress of weather or other influence interferes with the profusion of bloom. *Herbert Maxwell, Monreith.*

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OCCURRENCE IN ENGLAND OF THE WINTER STAGE (VENTURIA INAEQUALIS) OF THE APPLE-SCAB FUNGUS.

LAST year was notable, in a disastrous sense, to Apple growers in most parts of England, for the very severe attacks of Apple-scab that occurred. In many cases the infestation was so severe that the Apples cracked in the early stages of growth, or were so "scabbed" at maturity that they had to be consumed or marketed at once, as they were in too bad a condition to be stored. Even the fruits of Bramley's Seedling, a variety hitherto conspicuous (except in rare instances) for the way it remained immune from "scab," became quite commonly covered with the well known black spots of the fungus.

The life-history of the Apple-scab fungus has often been dealt with in these pages. Gardeners, as well as farmers, are well aware now that the sooty-looking patches on the Apple leaves are the summer-stage (Fusicladium) of this fungus, in which it is producing myriads of minute spores which, carried by wind or rain, may spread the disease to the Apples at all periods of their growth.

Spraying the leaves, while healthy, with Bordeaux mixture or lime-sulphur (according to the variety of Apple) to protect them against the infection of the scab fungus, has become the common practice in England, as in all other fruit-growing countries.

The manner in which the disease perpetuates itself from season to season is a point of great practical importance.

In the *Gardeners' Chronicle* for July 14, 1906, the infection of the young wood of the Apple tree was first recorded for this country. As shown in the photographs then reproduced (Fig. 79) it was discovered that the fungus in its so-called "summer stage" (Fusicladium) attacks during summer the one-year-old shoots (of certain varieties) and persists there through the winter months, the spawn of the fungus living in the layers below the bark, and breaking out, during winter and spring, in little pustules of spores (Fig. 80).

We have now to record the occurrence in England of the true winter stage of the scab-fungus. One of us, on visiting an Apple orchard at Linton, near Maidstone, Kent, on February 4 last, noticed a quantity of dead Apple leaves still lying on the grass. This orchard consists of trees of Bramley's Seedling and Newton Wonder Apples, and the fruit and leaves of both varieties had been severely attacked by scab in 1923. Many of the leaves on the ground were still whole and undecayed and showed the remains of dead "scab" spots on their surface. These leaves were taken to the laboratory and kept moist at ordinary room temperature. Examined after seven days, these leaves showed small, immature fructifications (perithecia) of a fungus. By the twenty-fourth day these bodies had matured, and were recognised as the true perithecia of the Apple-scab fungus.*

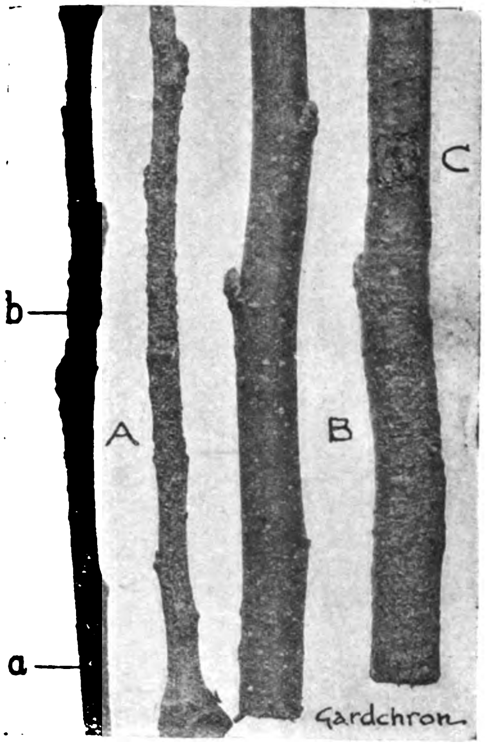

FIG. 79.—APPLE-SCAB ON YOUNG WOOD OF APPLES.

A.—On Cox's Orange Pippin; (a). healthy wood; (b). diseased wood, the blistered appearance being due to pustules of spores breaking through the bark. B.C.—On Dumelow's Seedling; (B). healthy wood; (C), diseased wood.

In this stage, known as Venturia inaequalis, winter-spores are produced in large numbers. The Apple leaves show, scattered over their whole surface, irrespective of the distribution of the previous summer's spots of scab, minute, dark brown or black, pimple-like bodies which have broken through the skin of the leaf, often on both surfaces. These are just visible to the naked eye, and are best seen when the leaf is wet. With a pocket lens each body is seen to have a minute projecting neck. If a section of the dead Apple-leaf is cut and examined in water under the microscope the structure of the perithecium can be observed (Fig. 81). The perithecium is flask-shaped, with a neck projecting more or less above the surface, and is filled with a large number of little sacs (asci), each of which contains eight two-celled winter-spores (ascospores) (Figs. 81, 82, 83).

So soon as the perithecium is mature and obtains sufficient moisture, the winter-spores are ejected from the little sacs (asci) and forcibly expelled through the mouth of the perithecium into the air. This ejection of winter-spores, which has been observed by Dr. Aderholt in Germany, and by several mycologists in the United States and other countries, takes place in the open during April or May. The winter-spore on reaching a healthy young Apple-leaf infects it and in about eight days produces the well-known conidial or "summer-stage" (Fusicladium). Errett Wallace, an American investigator, found* that from a fragment of leaf 1 cm. square, 5,630 spores were discharged in 45 minutes. From this it was computed that "if the surface of the ground beneath the trees set 40 by 40 feet apart were covered with old leaves well infested with perithecia, there might be 8,107,200,000 ascospores discharged for each tree in 45 minutes in wet weather."

To what extent outbreaks of scab in spring in this country are to be attributed to infection by the winter-spores of the Venturia stage of the Apple scab fungus on dead leaves has yet to be determined, and is obviously a matter of great economic importance. It is possible that in wet, mild winters Apple leaves decay before the perithecia are produced and that it is only in seasons like the present, characterised by dry, frosty weather, that this source of infection exists in the spring.

Fighting the scab disease is always far from an easy matter, and the grower cannot afford to neglect any of the sources of infection. In gardens it will be generally possible to have the fallen, "scabbed" leaves either swept up and burnt or well buried by being dug in; on fruit-farms the increasing practice of keeping pigs in the plantation will help materially in securing the destruction of the leaves.

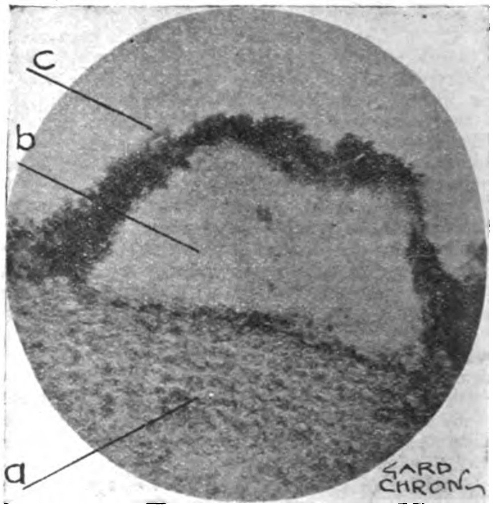

FIG. 80.—APPLE-SCAB FUNGUS.

Section through a pustule of spores, from a diseased branch of Cox's Orange Pippin; (a). cells of the branch; (b), cushion-like mass of fungus tissue, bearing over its surface myriads of minute, brownish spores (c); highly magnified.

We may add that we have found also the winter-stage (Venturia pirina) of the Pear-scab fungus. This will be described in a later communication. *E. S. Salmon and W. M. Ware, Mycological Dept., South-Eastern Agricultural College, Wye, Kent.*

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* The technical description of the fungus found on Apple leaves in Kent is as follows:—perithecium flask-shaped, 90-174 μ diam., averaging 138 μ, neck projecting more or less through the epidermis, commonly provided with a few brown setae, 24-42 long; asci numerous; ascus at first oblong, tapering, 60-70 × 6-11 μ, with ascospores biseriate, later when ejecting spores, narrowly cylindrical, with the spores uniseriate; ascospores 8, unequally 2-celled, oval-oblong, upper cell smaller, obtusely pointed, lower cell with rounded end, 12-15 × 6-7 μ, pale olive-green, somewhat translucent.

All the characters given above agree exactly with the specific characters of Venturia inaequalis as given by Aderholt and also by American authors (*e.g.*, B. M. Duggar, Errett Wallace). We do not hesitate, therefore, to identify our fungus with this species. Inoculation experiments with ascospores are in progress, to establish beyond doubt the connection of the fungus with the Fusicladium stage.

* Cornell Univ., Agric. Exper. Station, *Bull.* 335 (1913).

BOTANICAL AND GARDENING BOOKS.

Bernard Quaritch, Limited, of 11, Grafton Street, W. 1, has recently issued a catalogue of important and rare books from the library of the late Dr. Edward Bonnet. Apart from the medical works comprised in this interesting catalogue, there is quite a large number of valuable and important books on horticulture and botanical subjects. Many of these books do not often come into the market, but when they do they secure prices which are constantly mounting upwards. Gardening book collectors and libraries both here and in America on the look out for additions to their existing collections have increased in number enormously during the past quarter of a century or so, and there is little likelihood of a decrease.

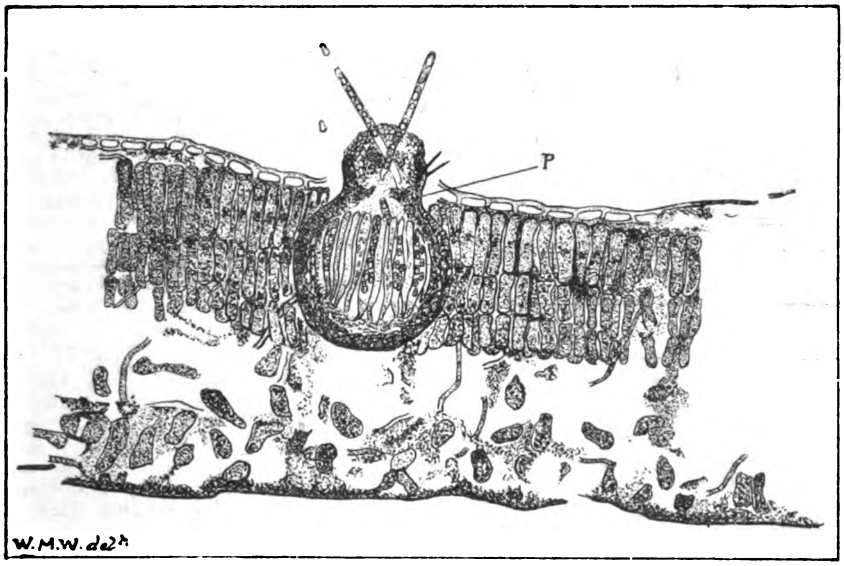

FIG. 81.—APPLE SCAB FUNGUS (SEE P. 192).
Section of dead Apple-leaf, showing the perithecium (P) with asci and ascospores. × 112.

Among new rivals to the Lindley Library of the R.H.S., the library at the National History Museum, South Kensington, and that at Kew, may be mentioned one about to be formed by the New Garden Club at Mayfair, recently opened. It has been stated that the house contains a fine library, in which it is hoped to form a comprehensive collection of standard garden books. It is to be hoped that the directors fully realise what this intention implies.

Only a short time ago the Gardeners Company, one of the old City Guilds, announced its intention of forming a library of books on gardening for the free use of professional and amateur gardeners, horticultural students and the general public. In this case it is very evident that the members of the Gardeners Company have a very vague idea of what they propose to undertake. The amount of money at their disposal is far too insignificant for them to build up such a library as will come within the scope of "best books on every horticultural subject *without regard to cost*," at any rate this side of the next half century. And I wonder what the gentleman knows about old garden books, who penned the words I have italicised.

Looking over the catalogue of Bernard Quaritch's, and without taking into account the very large number of best books on every horticultural subject that can only be bought at £5 to £10 each, there will be noticed among some of the most attractive items, such works as Cooke's *Illustrations of British Fungi*, £30; Curtis' *Botanical Magazine* (and no horticultural library can do without a set of this), 1787–1887, £136; Duhamel du Monceau, *Traité des Arbres Fruitiers*, £98; Edwards' *Botanical Register*, £56; Gallesio, *Pomona Italiana*, £90; Gerarde's *Herbal*, £34; *Index Kewensis*, 1893–1913, £16; Lambert, *The Genus Pinus*, £68; Loddiges' *Botanical Cabinet*, £75; Redouté, *Les Roses*, £165: Repton's *Landscape Gardening*, £31 10s.; Sowerby's *English Botany*, £70, and many more in the various departments of horticulture of greater or less pecuniary value.

The receipt of Quaritch's catalogue was followed by that of another well known firm which specialises in horticultural books, *i.e.*, Messrs. Wheldon and Wesley, of 2-4, Arthur Street, W.C. 2. From this catalogue may be selected just a few old books of varied interest and mostly beyond the purse of the ordinary student in horticulture:—Andrew's *Geraniums*, £9 9s.; his coloured *Engravings of Heaths*, £60, and his *Botanist's Repository*, £22 10s.: Berlése, *du Genre Camellia*, £18 18s.: Verschafelt's *Nouvelle Iconographie* on the same flower, £15; several of Jacquin's very costly works: Jaume St. Hilaire, *Plantes de la France*, £28; Redouté. *Jardin de la Malmaison*, £105; Franeau, *Le Jardin d'Hyver*, £30; Mollet, *Le Jardin de Plaisir*, £50; *Stowe Gardens*, Bucks, £25; and even after this modest selection we lack space to include some of the most beautiful of modern works, one of which Miss E. Willmott's *Genus Rosa* comes prominently to mind.

A third catalogue recently to hand is that of Messrs. Dulau & Co., 34-36, Margaret Street, W.1., in which there are several thousand volumes offered for sale of Floras, Herbals, horticultural and botanical works in every conceivable department, including Bernet, *Plantae Utiliores*, £4 4s.; Kirkitor, *Indian Medicinal Plants*, £25; Pammel, *A Manual of Poisonous Plants*, £2 2s.; Sinclair, *Hortus Gramninius Woburnensis*, £3; Aiton, *Hortus Kewensis*, £2 2s.; Ames, *Orchidaceae*, £2; Andrews, *Coloured Engravings of Heaths*, £20; *Annals of Botany*, £28; Bailey, *The Standard Cyclopaedia of Horticulture*, £10 16s.; Baillon, *Histoire des Plantes*, £10; Bauer, *Illustrationes Flore Novae Hollandiae*, £4 4s.: Blackwell, *Herbarium Blackwellianum*, £16 16s.: Blanco, *Flore de Filipinas*, £25. *Catalogue of the Library of the Arnold Arboretum*, £6 6s.: *The Compleat Florist*, £7 7s.; Curtis' *Botanical Magazine*, 1–61, 68, and 70-97, £95; Dykes, *Genus Iris*, £10; Elwes and Henry, *The Trees of Great Britain and Ireland*, £55; and De Croix, *Recueil des Plantes*, £200

It really seems a most ambitious project for any new library to hope to compete with existing ones, and unless the necessary funds be forthcoming, an impossible one. *C. Harman Payne.*

NOTICES OF BOOKS.

A Manual for Spraying.*

A Manual for Spraying is a typical American book and the author, Mr. K. L. Cockerham, has endeavoured, as he remarks in the preface, "to set forth in simple and accurate manner that information which has accrued from years of experimenting so that the layman or student may easily refer to it." Such information has been gleaned from the vast numbers of pamphlets and bulletins issued from the U.S.A. Department of Agriculture and the various American Experimental Stations.

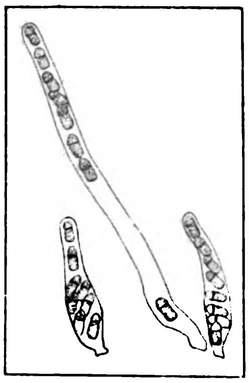

FIG. 82.—APPLE SCAB FUNGUS (SEE P. 192).
Asci: the long cylindrical ascus is about to discharge its ascospores. × 168.

The book will doubtless be of value to the American grower to use as a reference guide, as it is for the main part occupied with a long list of names of pests and diseases, classified under the various crop headings. There is no information as to how to recognise either diseases or pests but very brief descriptions of the injury, with short notes as to treatment, are included.

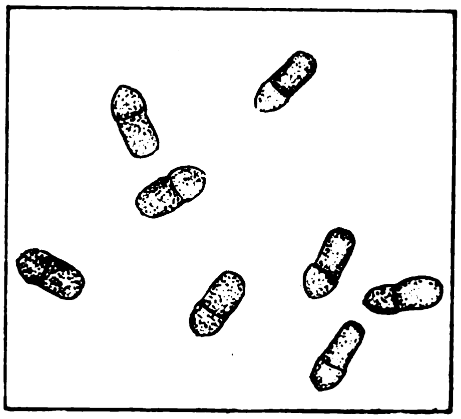

FIG. 83.—APPLE SCAB FUNGUS. (SEE P. 192).
Ascospores very highly magnified.

American common names only are employed and it is perhaps as well the author did not undertake the task of giving the scientific name, for the very few Latin names which have been used in the text are badly mis-spelt. For instance, on p. 19 in the chapter dealing with "Insecticides and Fungicides," Pyrethrum cinerariaefolium is spelt P. cinerarioefolium and Ranunculaceae appears as Renonculaceae.

The grower must needs be possessed of a good knowledge of chemistry if he is to understand the chapter devoted to the many chemicals used in combating the diseases and pests, for it has been written in highly technical language, and the reader is burdened with long, complex formulae and equations, the value of which may be of very little consequence.

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* *A Manual for Spraying.* By K. L. Cockerham, p. 87, New York: The Macmillan Company. Price 7s. net.

GERMINATION OF ORCHID SEEDS WITHOUT FUNGAL AID.

A very interesting paper on the "Germination of Orchid Seeds without Fungal Aid," by Mr. E. Clements, was read at a recent meeting of the British Mycological Society. The author has been interested for many years in the raising of Orchids from seeds and gave a short account of his earlier investigations. After commenting on the work of Bernard, Burgeff, and Charlesworth it was suggested that it is conceivable that the Orchid seed, by reason of its constitution, is unable to obtain from its surroundings sufficient nutriment to maintain and replenish its own meagre food supply. As a result of a consideration of the symbiotic association it suggested itself to the author that if a suitable and easily assimilated food was provided, together with favourable growing conditions, the seed might adapt itself to its new environment and germinate without fungal aid, as it is possible that the aid rendered by the fungus may lie in the direction of food preparation rather than itself being a direct nutrient. Accordingly various media were tried with the idea of providing the embyro with easily assimilated food. After many trials a suitable medium was prepared. It was found that the seeds of Odontoglossum were so exacting in their requirements that the slightest variation of the composition apparently most suitable was immediately shown by the embyro, and for different species of the genus a modification was necessary. Aseptic seed sown on the medium showed the formation of a small green embryonic spherule after six days. Moreover 90 to 95 per cent. of the seeds had attained this condition. Development appeared to be quite normal; at twelve weeks "root" hairs began to appear and at four months a leaf point had formed. The protocorms were later transferred to new pots containing unused fibre compost. Three or four weeks after transplanting, roots had began to penetrate the compost. In the case of Dendrobium seeds, signs of growth were seen after six to eight days, and at the age of four months the seedlings possessed a distinct pseudo-bulb having two well formed leaves and roots 2-3 mm. in length. Transplanting was completely successful. Cattleya also was successfully raised, some slight modification of the medium being made in these two cases. The author suggests that to be able to dispense with the aid of the fungus in cultivation is a great advantage, because the tedious and difficult task of isolating and culturing the specific endophyte is obviated and also the risk of death of the embyro through an ill-balanced or modified form of the fungus. It is considered that there is no doubt that photosynthesis plays an important part in the germination of Orchid seed. Further, the hydrogen ion concentration of the medium is also a factor to be considered and modified according to the species. Culture tubes showing very fine growths of Odontoglossum, Cattleya, Cymbidium, and Dendrobium seeds were exhibited, and pots showing healthy young seedlings.

NEW HYBRID ORCHIDS.

(*Continued from February* 23, *p.* 104.)

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Doreen	C. Trimos × B.-C. Digbyano-Mendelii	Stuart Low.
Brasso-Cattleya Ella	C. Fabia × B.-C. Rutherfordii	Charlesworth.
Brasso-Cattleya Esther	B.-C. speciosa × B. Digbyana	Charlesworth.
Brasso-Cattleya Rhodesia	C. armainvillierensis × B.-C. Digbyano-Mendelii	H. Dixon.
Brasso-Cattleya Theba	C. Rhoda × B.-C. Mrs. J. Leemann	Charlesworth.
Brasso-Laelio-Cattleya Biddy	B.-L. Mme. Mavrocordato × C. Thurgoodiana	C. J. Lucas, Esq.
Brasso-Laelio-Cattleya Elta	B.-C. Digbyano-Warneri × B.-L.-C. Cooksonii	Charlesworth.
Brasso-Laelio-Cattleya Evalina	C. Schröderae × B.-L.-C. Wotan	Stuart Low.
Brasso-Laelio-Cattleya Idina	L.-C. Sirius × B.-C. Mrs. J. Leemann	Charlesworth.
Brasso-Laelio-Cattleya Nigeria	B.-L.-C. pulcherrima × C. Warscewiczii	Charlesworth.
Brasso-Laelio-Cattleya Ornatus	B.-L.-C. Cooksonii × C. Antiope	Charlesworth.
Brasso-Laelio-Cattleya Perseus	B.-C. Digbyano-Mendelii × L.-C. Luminosa	Charlesworth.
Brasso-Laelio-Cattleya Pharos	B.-C. Mrs. J. Leemann × L.-C. Smilax	Charlesworth.
Brasso-Laelio-Cattleya Sheila	B.-L.-C. Cooksonii × C. iridescens	Charlesworth.
Brasso-Laelio-Cattleya Shinjik	L.-C. Luminosa × B.-C. Ilene	Tokyo Botanic Garden.
Brasso-Laelio-Cattleya Thisbe	B.-C. Digbyano-Schröderae × B.-L. Digbyano-purpurata	Charlesworth.
Brasso-Laelio-Cattleya Turinga	L.-C. Aureole × B.-C. Mrs. J. Leemann	Charlesworth.
Cattleya Artis	Rhoda × iridescens	Charlesworth.
Cattleya Calypso	Mrs. F. Hurndell × Fabia	Charlesworth.
Cattleya Carina	Almata × Dowiana aurea	Charlesworth.
Cattleya Mildred	Fabia × Rhoda	Charlesworth.
Cattleya Okami	Suavior × Warscewiczii	Tokyo Botanic Gardens.
Cattleya Percivocderae	Percivaliana × Schröderae	Sir J. Colman.
Cattleya Viscount Ijuin	Carmen × Warneri	Tokyo Botanic Gardens.
Cypripedium Hermosa	Gaston Bultel × Prince Albert	Charlesworth.
Dendrobium bletchleyense	Dulce × nobile	Sir H. Leon.
Dendrobium Iona	signatum × chessingtonense	Sir H. Leon.
Dendrobium Lady Violet	Regium × Lady Colman	Sir J. Colman.
Dendrobium Mary Caine	Royal Sovereign × Euryalus rubens	Sir J. Colman.
Laelio-Cattleya Attraction	Luminosa × Myrrha	Charlesworth.
Laelio-Cattleya Ceto	C. Bowringiana × L.-C. Colmaniana	Charlesworth.
Laelio-Cattleya Cruenta	Creusa × Thyone	Charlesworth.
Laelio-Cattleya Daffrosa	L.-C. Neleus × C. Venus	Charlesworth.
Laelio-Cattleya Dainty	Triopas × Golden Oriole	Charlesworth.
Laelio-Cattleya Elmina	L.-C. Myrrha × C. Venus	Charlesworth.
Laelio-Cattleya Gaika	C. Gaskelliana × L.-C. St. Gothard	Charlesworth.
Laelio-Cattleya Grace	L.-C. Ellinor × C. Rhoda	A. Watson, Esq.
Laelio-Cattleya Laguna	L.-C. Dominiana × C. Tityus	Charlesworth.
Laelio-Cattleya Maros	C. Iris × L.-C. Thyone	Charlesworth.
Laelio-Cattleya Medusa	Thyone × Golden Oriole	Charlesworth.
Laelio-Cattleya Modasa	C. Maggie Raphael × L.-C. St. Gothard	Charlesworth.
Laelio-Cattleya Netty	C. Basil × L.-C. St. Gothard	Charlesworth.
Laelio-Cattleya Palmata	Daphne × Dominiana	Charlesworth.
Laelio-Cattleya Phaedra	L.-C. amabilis × C. Hardyana	Charlesworth.
Laelio-Cattleya Sarepta	C. Venus × L.-C. Thyone	Charlesworth.
Laelio-Cattleya Wilfred Frost	St. Alban × Martinetii var. Flambeau	Sanders.
Laelio-Cattleya Shibata	Lustre × Luminosa	Tokyo Botanic Gardens.
Laelio-Cattleya Shinjik	L.-C. Vesta × C. Dowiana	Tokyo Botanic Gardens.
Laelio-Cattleya Sicilia	C. Dowiana aurea × L.-C. Bola	Charlesworth.
Laelio-Cattleya Tekoa	L.-C. Creusa × C. Dowiana	Charlesworth.
Laelio-Cattleya Titian	L.-C. St. Gothard × Bella	Sanders.
Laelio-Cattleya Vernalis	C. chocoensis × L.-C. Bella	Charlesworth.
Laelio-Cattleya Warcasta	C. Warscewiczii × L.-C. Epicasta	Sir H. Leon.
Odontioda Audrey	Brewii × Elsie	Charlesworth.
Odontioda Elegans	Odm. cirrhosum × Oda. Bradshawiae	H. Dixon.
Odontioda Purple Emperor	Odm. Armstrongii × Oda. Coronation	Armstrong & Brown.
Odontioda The Torch	Odm. ardentissimum Louis Sander × Oda. Sanderae.	Sanders.
Odontioda Warden	Oda. Madeline var. Prince of Orange × Odm. Phillipsianum	C. Cookson, Esq.
Odontoglossum Hermione	Lambeauianum × Gatton Emperor	Sir J. Colman.
Odontoglossum Lady Tyrrell Giles	amabile × Jeanette	Sir J. Colman.
Odontoglossum Molly	Aireworth × Her Majesty	Robert Paterson.
Odontoglossum Pavonia	maculatum × crispum	Charlesworth.
Odontonia Fascination	O. Roger Sander × Odm. Lawrenceanum	Sanders.
Sophro-Laelio-Cattleya Aspersa	S.-L.-C. Niobe × Marathon	Charlesworth.
Sophro-Laelio-Cattleya Tuga	S.-L.-C. Niobe × L.-C. Dominiana	Charlesworth.

THE DAHLIA AS A CUT FLOWER IN HOLLAND.

There is no doubt that the merit of the Dahlia as a commercial cut flower is insufficiently recognised in England, whereas in Holland Dahlias are grown very largely for this purpose. During late summer and early autumn a visitor to Holland expresses surprise at the high popularity this flower has attained. The blooms are displayed in large vases in shop windows, and nearly every house window in town and village is brightened with Dahlia blooms. The flowers also play a considerable part in hotel decorations, being freely used on the tables and in the halls, lounges and vestibules, while incalculable numbers are employed for the street decorations and for processional cars during the national fêtes. All colours are used, but orange, the national colour, predominates, although the national flag colours may be easily made up with red, white and blue, purple or mauve being employed for the last named colour.

In the Scandinavian countries and in the United States the Dahlia is also a very familiar subject, both for garden decoration and as a commercial flower. It is only within the last few years that the Dahlia has become so popular, and it is difficult to understand why this old world flower should have attracted such public attention of late, unless it be that the progress made within the last dozen years, particularly in the Paeony-flowered and Decorative sections, has appealed to popular fancy. The hybridist has, of course, directed his attention to beauty, form and colour, but the commercial success of the Dahlia is attributed to the length and strength of the stem, which after years of patience has now been procured. No flower for market, and incidentally for indoor decoration, is of any value unless it is supported by a good, stiff stem.

The Paeony-flowered Dahlias, which are semi-double and show an open centre, were the first to come into vogue and were soon followed by the new Decorative type, which is really only a full Paeony-flowered Dahlia; more recently the Cactus forms have been developed with long, wiry stems and are classified as garden Cactus varieties, but why "garden Cactus" it is impossible to say, for many of the varieties are excellent for cut flowers and keep fresh for a long time after being cut.

With regard to the cultivation of the Dahlia, it is advisable te plant tubers, either small or large, for these will give blooms early in July until the frost destroys the plants. The Dahlia may be grown from cuttings as well, but, as a rule, the plants do not commence flowering before the middle or the end of September.

The Dahlia is not particular as regards soil provided this has been well dug, but it is not advisable to be too liberal with manure, otherwise the plants will grow too coarse and give poorly-formed blooms. The flowers should be cut when they are nearly full grown, as undeveloped blooms wither quickly. The blooms should be removed with as long a stem as possible and should be gathered early in the morning or after six o'clock in the evening. It is important to leave only a few leaves on the flower stems, for if all the foliage is left on the stems it is inclined to take up too much water at the expense of the flower. As soon as the flowers are cut the stems should be placed in a deep bucket containing plenty of water.

The best varieties for cutting are as follow: among white flowers, Princess Juliana (Decorative), a free-flowering variety, the blooms being produced on long, wiry stems. This very popular Dahlia is an excellent market variety, stands packing and rough handling, and keeps a long time in water after being cut; Roem van Aalsmeer (Decorative); this variety received a First Class Certificate when shown in Leiden in 1921. The flowers are pure white and of perfect form. The variety is used a great deal for floral work and is regarded as being an improvement on the previous variety; Mount Everest (Decorative), is a new variety of great merit, possessing large, regular flowers, which are produced well above the foliage. It received an Award of Merit in the Haarlem Dahlia Trials in 1921 and a First Class Certificate at Haarlem in 1922; and White Queen (Garden Cactus), a pure white variety and very free-flowering.

Of pink varieties there are Princess Mary (Paeony), a very showy flower of good colour and excellent for cutting; Murillo (Decorative), a new introduction and one of the finest pink Dahlias ever raised. The blooms are regular in shape, borne on stiff, elegant stems and the colour is flesh-pink, shaded with rose-salmon; Mr. Dresselhuys (Decorative), which gained an Award of Merit in Paris in 1922 and a First Class Certificate at Haarlem and Amsterdam in 1922. The shape is similar to the well-known variety Delice and the rose-pink flowers are produced well above the foliage; and Michael Collins (Decorative), a new variety and a splendid addition to this class; the colour is rose-pink—a delightful shade.

Scarlet and red varieties are represented by Vrybuiter (Decorative), an indispensable variety for cutting and undoubtedly one of the best of scarlet flowers; Moorkop (Decorative), deep blood-red and very floriferous. The blooms are medium-sized and the habit is dwarf; and John Kingdom Smith (Decorative), rich orange-scarlet, a particularly striking flower of perfect form.

Vesuvius, Artis, and Sir Ernest Shackleton, three Decorative varieties, represent the pick of the orange-scarlet shades and the first named is one of the most conspicuous varieties in cultivation. It gained an Award of Merit at Wisley in 1923 and has received First Class Certificates at Haarlem and Amsterdam.

Of fawn and terra-cotta shades the best varieties include King of Autumn (Decorative), of bright fawn colour and the first Dahlia introduced of this tint; Dream (Decorative), a very dependable variety for cut flower work; Salmonea (Decorative), a flower which has been awarded the highest honours where-ever shown, the colour being a pleasing shade of pure salmon; Orange King (Paeony), brilliant deep orange; Sunset (Pompon), a variety with bright flowers; and Prince of Wales (Decorative), of very attractive colouring, being a self salmon-cerise.

Lilac and mauve are very popular colours and the best varieties of these shades are Remembrance (Decorative), a variety which has proved of great merit; Lady Derby (Garden Cactus), soft lilac-pink; Jubilee (Garden Cactus), silvery-lilac-mauve; Erica (Decorative), a very pleasing shade of mauve and highly recommended both for colour and form; and Zephyr (Decorative), a splendid variety of a most pleasing shade of lilac.

The best yellow varieties include Yellow King (Garden Cactus), a very large flower of sulphur-yellow colour; Yellow Perfection (Decorative), a new variety, the colour being very clear and the flowers of large size; Harpagon (Garden Cactus), a free flowering variety; and Cliche (Decorative), pale citron-yellow. Golden King (Decorative) is a very beautifully formed flower of medium size and of a rich golden-bronze colour. *J. P.*

NURSERY NOTES.

PERRY'S HARDY PLANT FARM.

The firm of Perry has been instrumental in enriching our gardens with many beautiful hardy flowers, and among the subjects on which they have bestowed many years of patience in improving are Lilies, hardy Ferns, Oriental Poppies, Irises, Asters, and aquatic plants. Their stock of hardy Nymphaeas is one of the most complete in the country, and during a recent visit paid to Enfield we were shown large quantities of plants which will be ready for distribution in May.

The cultivation of Nymphaeas presents very few difficulties provided a few important points are considered. Water Lilies must not be planted too late, and May or June are the best months in which to perform this operation; never plant in the autumn. The depth of the water in the pond or pool is also important, and from two to two-and-a-half feet may be taken as a maximum depth in which to grow Nymphaeas; some varieties will flourish in water of a greater depth, while others will succeed in water from one foot to eighteen inches deep. The method of planting varies, but the one in usual practice is to sink the plants in baskets filled with good soil, covering the top of the basket with an old piece of sacking or stones to prevent the soil from being washed out of the receptacle.

Water Lilies enjoy plenty of direct sunshine, and even though a pond is surrounded by trees there are usually to be found open spots between where the sunshine is uninterrupted. They will also succeed when planted near the banks of sluggish streams, but fast running water is fatal to them, for the plants are chilled, and growth as a consequence is very restricted.

Where new artificial pools have been constructed it is advisable to flush them several times with clean water before planting, otherwise the caustic properties of the cement are liable to damage the plants.

Messrs. A. and W. Perry are distributing for the first time this season some of the finest hybrid Nymphaeas.

Their novelties include Souvenir de Jules Jaquier, which gives a plentiful supply of very large flowers of a brilliant rose colour, shaded with white; and amabilis, the flowers of which are Tulip-shaped, and stand well above the water, while the colour changes from pale salmon to the deepest salmon-red as the flowers develop. Other of the newer introductions are Gloire du Temple-sur-Lot, a highly fragrant, double flower with an abundance of petals of a delicate shade of shell-pink; Sirius, with a mottled and striped foliage, the sub-petals being of a fawn colour, shaded red, the inner ones deep red, spotted with white; Indiana, a very distinct variety, the colour of which develops from orange-yellow to bright copper as the flower ages and Mrs. Richmond, which has flowers much finer than N. Laydekeri rosea. For growing in tubs, small pools and tanks, the Laydekeri and odorata varieties are to be recommended; while for larger areas, N. Colossea (Fig. 77), which has magnificent blooms of blush-white colour, freely produced over a long period; N. lactea, milk-white, star-shaped flowers; J. Brydon, one of the finest of the rose-coloured section, and Solfaterre, with flowers of a curious shade of yellow, suffused with reddish terra-cotta, may all be recommended.

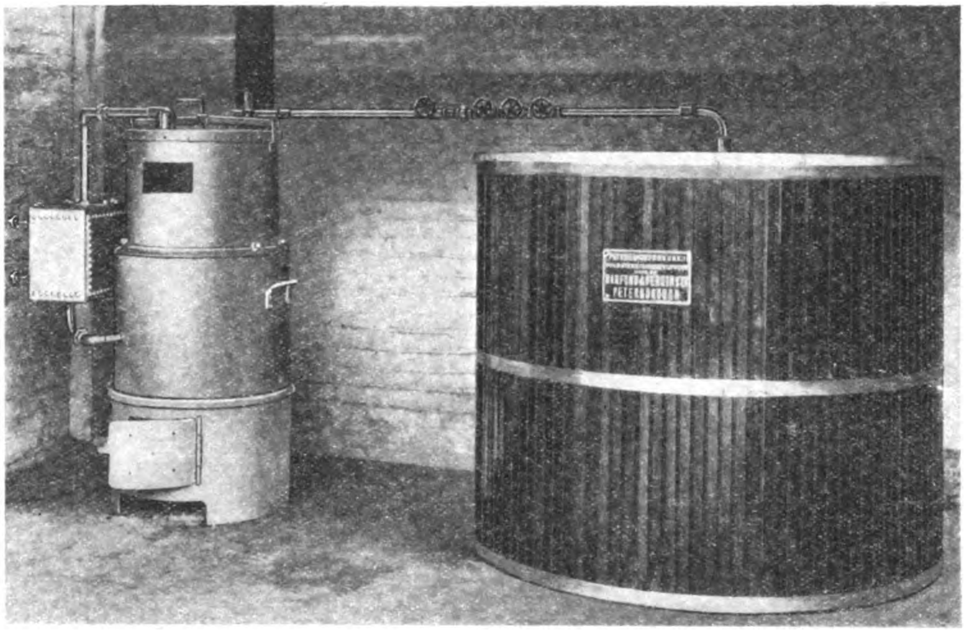

FIG. 84.—APPARATUS FOR STERILISING NARCISSUS BULBS.

STERILISATION OF NARCISSUS BULBS BY HOT WATER.

Leading members of the Lincolnshire Bulb Growers' Association met at Peterborough recently, at the works of Messrs. Barford and Perkins, the well-known Engineers, to witness a demonstration of a new apparatus designed for the purpose of sterilising Narcissus bulbs by the hot water process.

Messrs. Barford and Perkins, the inventors, have for many years been makers of disinfecting and sterilising apparatus heated by high pressure steam, and last year, Mr. Shaw, of Messrs. Seymour Cobley, Ltd., brought to the notice of the firm the need of the Lincolnshire bulb growers for an efficient and economical apparatus for sterilising Narcissus bulbs against the eel-worm disease caused by Tylenchus devastatrix. After some time spent in experimental work, Mr. F. A. Perkins, B.A., one of the directors of the firm, with the assistance of Mr. J. K. Ramsbottom, N.D.H., the investigator of the disease in this country, designed a sterilising apparatus (Fig. 84) in which the water was heated by coils of steam-heated pipes, and in which the desired temperature of 110° to 111°, was effectively regulated and kept constant by specially designed valves.

Three large sets of apparatus of this descripton were erected last year in Spalding, Cornwall, and Scilly, and the results have been so gratifying that the patentees were approached by a number of growers to construct and place on the market a smaller apparatus designed on the same lines. The smaller apparatus, which was shown at Peterborough, consists of a specially designed steam boiler, and one sterilising tank, capable of holding eight to ten cwts. of bulbs at one filling, and which is sold complete at well under £100. The design and working of the apparatus was explained to the company by Mr. F. A. Perkins, and numerous questions which those present asked were satisfactorily answered. The growers expressed themselves as delighted with the simple and effective working of the outfit, which they unanimously described as fool-proof, and a great improvement on existing types of apparatus. Many visitors from Holland were present, and they, too, were highly satisfied with the construction and efficiency of the sterilising plant. The running expenses are insignificant, and all present at the demonstration felt that a great advance had been made in enabling growers to sterilise their bulbs at a minimum cost.

The apparatus consists of (*a*) a boiler for supplying steam for heating tank; (*b*) a tank of 500 gallon capacity which contains water in which the bulbs to the weight of 8 to 10 cwt. at a time are immersed; (*c*) a steam coil and special patented arrangement of valves for controlling the temperature.

The tank is insulated from heat losses by being lagged with two coverings of non-conducting material. At the bottom of the tank is a coil of piping through which the steam from the boiler passes. The temperature is controlled by four valves of special construction and also by the fact that the condensed steam is discharged through a pipe which rises above the level of the steam coil. When it is desired to raise the temperature of the water in the tank rapidly, the steam is turned full on and a rapid transference of heat takes place. After the required temperature has been attained, the steam in the coil is replaced by hot water, resulting in a steady transference of a small and constant amount of heat to the water.

As a result of this novel arrangement, an unskilled labourer, after a few hours practice, is able to maintain a constant temperature of hot water in the tank to within the very small limits of plus or minus a quarter of a degree Fahr.

The boiler is specially constructed for simplicity of working, and is fitted with a self-supply apparatus which automatically maintains the water level without the use of an injector or feed water pump. The firebox is of sufficient capacity to require stoking only once in two hours. The cost of fuel for a working day of ten hours is under 2s.

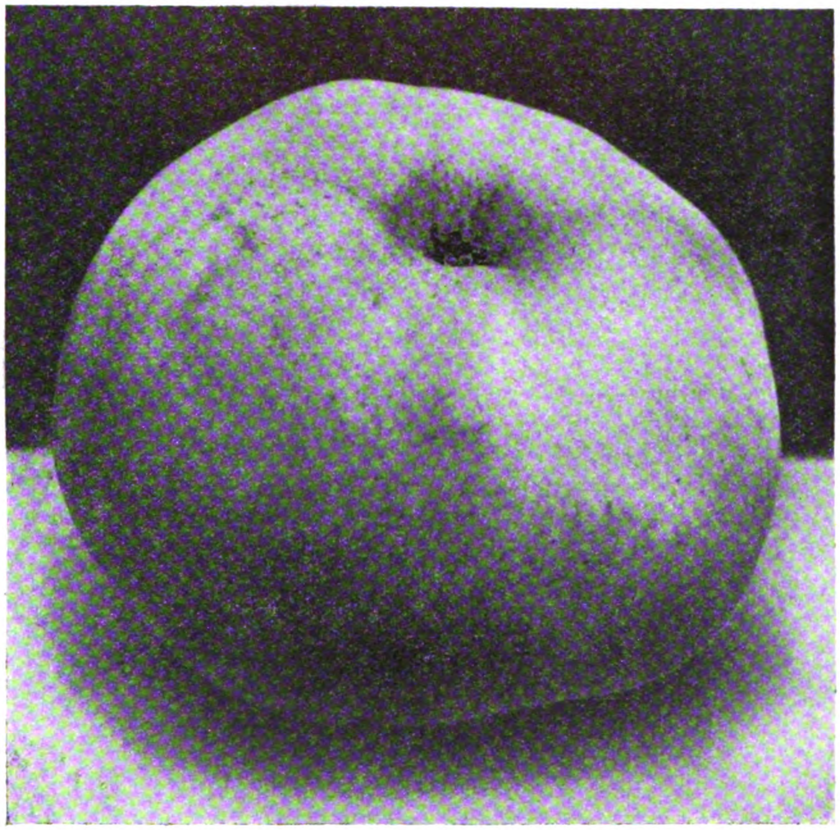

FIG. 85.—APPLE ONTARIO.

HARDY FRUIT GARDEN.

PROGRESS IN HARDY FRUIT CULTURE.

Although horticulturists generally, and hardy fruit growers in particular, experienced a most tantalising and depressing season in 1923, there is no question that each year we are making considerable progress in fruit growing, as is patent to all close readers of *The Gardeners' Chronicle.* Contributors to these pages have, for a long number of years, contended that our soil and climate are still capable of producing Apples equal in appearance and superior in quality to the best from any other country, for many of the imported fruits are dry in texture owing to the hotter and drier climate in which they are grown. Fruit growers' associations are becoming more powerful, and still springing up in various parts of the country, landlords are each year becoming more mindful of their own interests, and last, but not least, the Royal Horticultural Society is proving equal to the great work expected from it. This society is conducting trials of the most promising hardy fruits of all varieties considered suitable for either commercial or private purposes, and doubtless these trials will become increasingly interesting and instructive each succeeding year to those contemplating planting fruit trees in the near future. More horticultural instructors are being appointed all over the country, entomologists are making us acquainted with the life histories of insect pests, whilst hybridists are adding new varieties of hardy fruits of merit.

Messrs. G. Bunyard and Co., Maidstone, are each month showing selections of the best Apples in season at the R.H.S. meetings in place of large general collections, and these exhibits should be of special interest to intending planters. The bottling of fruits has increased enormously in recent years, but is still not done to the extent it deserves.

Work in the hardy fruit garden during the last quarter of the past year was done under great difficulties owing to the unfavourable weather. So detrimental is incessant trampling of heavy soil that much pruning has been allowed to fall into arrears. These delays upset the usual routine of the garden but, still mindful of the serious effect of the drought of 1921, we can but look upon the heavy rainfall this winter as a blessing for which by-and-by we may be thankful.

The pruning and training of bush Apples is often deferred until other fruit trees are finished.

Nature in our every day walks shows us most perfect examples of tree training, and, provided the shoots are judiciously thinned and allowed to extend, they soon become complete cordons of healthy spurs. The shoots of some upright growers may be drawn down to give them a horizontal position, while others may require separating to prevent crowding in any one part of the tree, but beyond these attempts nature may safely be left alone.

Pruning is often abused, and beyond thinning and shortening over - luxuriant shoots to preserve the balance of the tree, the less trees on dwarfing stocks are pruned the better. To prevent fruit trees becoming densely crowded with shoots and foliage, pinch all side shoots, in June, July and August but so long as the balance is maintained allow the terminal shoots to extend. Suppress every shoot that needs it and revert to the knife only if this mode of treatment does not result in the formation of a profusion of fruit spurs. *F. Jordan.*

FRUIT REGISTER.

APPLE ONTARIO.

At the meeting of the Royal Horticultural Society on January 29 last, Mr. J. C. Allgrove showed several trees of this American-raised Apple with fruits still hanging on the branches, some of the specimens having eight or nine well-developed Apples, one of which is illustrated in Fig. 85. The exhibit aroused considerable interest, especially in view of the fact that the trees had been lifted from the open and placed in pots for the purpose of exhibiting them. At the Temple show, May 25, 1898, Messrs. George Bunyard and Co. gained an Award of Merit for this variety, and we have before us a specimen in excellent condition, proving it an exceedingly late keeper and very valuable at a time when home-grown Apples are scarce. Mr. Allgrove describes it in his catalogue as being free-bearing and very useful. Mr. E. A. Bunyard in his *Handbook of Fruits* states that it may be used for either culinary or dessert purposes. is in season until April and is an excellent late variety worthy of extended cultivation. It is said to be a cross between Wagner and Northern Spy raised by a Mr. Charles Arnold in Ontario.

The specimen illustrated in Fig. 85 is of natural size, and it will be seen that it has a flattish, irregular shape. The skin is coloured a beautiful pale yellow with a suffusion of very pale red on the sunny side and with deeper stripings of red. The flesh is crisp, juicy, and of a pale yellow colour. The stem is about half-an-inch long and inserted in a somewhat deep, conical cavity. Although it could not be ranked as a high-class dessert variety, the eating qualities for an Apple in April are excellent, and there is an agreeable sub-acid flavour and a considerable amount of juice. Those desirous of growing one of the latest keeping varieties of Apples may be recommended to include Ontario in their collections.

HOME CORRESPONDENCE.

Young Lads and Horticulture.—Most of the correspondence on this subject has been interesting, but I think some of the contributors have missed the point. There is no reason why the lads of to-day should not make as good and able men as the present head gardeners, and even better if they avail themselves of all the advantages that they have in these days of acquiring the knowledge that is essential to their craft. He would be a bold man, however, who would say that the young lads of to-day are as much in love with their profession as the lads of twenty years ago or even less. The first thing that stands out is, they are not so fond of studying to-day as the lads of a former age were. We live in an age of sport and pleasure, and so far as my observations go in a large number of cases these things have more interest for the young, and a large number of older people, than their own business, and so long as that continues to be they will not make the best out of life. When young men blame their chiefs because they have not made greater progress in their profession, it is, to say the least, a very lame excuse. I rather think some of the writers on this subject have not reached the stage of head gardener yet, and that will account for the tone of their letters. When they have had twenty years experience or more they will have something different to write about. *J. T.*

—— *Inside Journeyman* was very unfortunate in his horticultural career; the type of head gardener he mentions is very seldom met with. I for one commenced as an improver at the age of fourteen under a gardener who was always ready to explain the best way to deal with the various gardening operations. There are many reasons why young lads lack interest in horticulture. Comparing the present time with twenty-five years ago and considering the industrial development in the country, especially in motor and mechanical engineering, there is no doubt that the lads of to-day prefer apprenticeships in the workshops, learning a trade with a brighter prospect in view. I think all of us who are interested in the horticultural profession will agree that after many years of careful study and practice the future for the young gardener does not appear very prosperous. In many cases the gardener's salary is not sufficient for the position he holds, and often he fails to obtain re-engagement through having a small family or objecting to his wife being required part or full time as a domestic servant. Under these conditions we cannot expect many lads of the present day to take up work connected with horticulture. *G. Gayler.*

Royal Gardeners' Orphan Fund.—I have promised to take the chair at the annual Festival Dinner of the Royal Gardeners' Orphan Fund this year on May 7, at the Hotel Victoria, and I am anxious to make the Dinner an unqualified success. It is a splendid charity and helps to lighten the burden of widowed mothers who are left by gardeners who through force of circumstances have been unable to provide for the upbringing of their young children. The children of nurserymen, seedsmen, and many of those in their employ are also eligible for the fund; it is supporting children in all parts of the British Isles and is entirely dependent upon voluntary contributions for its maintenance. A considerable portion of its small invested capital was parted with during the stress of war and I am anxious that this should now be replaced. I want to make this year's Festival a real occasion for the Seed and Nursery Trade, with which I have been associated for so many years, to come forward and give me their most valuable support. I want to see a large gathering on May 7 and a record subscription list. *Edward Sherwood.*

Skimmia Fortunei.—The statement by *J. F.* on p. 159 that Skimmia Fortunei is a plant which nobody seems to recognise should draw atttention to this useful shrub. But few recognise its value for decorative effect in the outdoor garden, in winter when massed in quantity on gently sloping banks, or along the outer fringe of the rock garden. It is invariably laden with berries, in marked contrast to the numerous unisexual progeny of S. japonica. *White Wings.*

Mr. Wilding's List of Rhododendrons.—I think your reviewer (see p. 139) has perhaps scarcely done justice to Mr. Wilding's *Rhododendrons: their Names and Addresses.* Its chief purpose is to provide a pocket guide to this now large and unwieldy genus and this it does very creditably. The "addresses," which the writer assumes are the references to various publications, palpably refer to where the various species may be found at home—in other words, their native countries. With regard to the price one has to remember that comparatively few people are interested in Rhododendrons to the extent covered by this work, that it represents an enormous amount of work proportionate to its bulk, and that only a few score copies have been printed. *W. J. Bean.*

Pernettya Failing to Fruit.—I wonder if any of your readers could tell me the reason of Pernettya mucronata failing to set berries. When taking charge of these gardens I found one hundred plants which had been procured from a well known nurseryman who had forwarded to Major Bond a box of berried sprays, but only four of the plants ordered set berries. I may state that I found amongst a lot of rough shrubs, in a portion of ground bought later, about twenty plants of Pernettya in very indifferent health, but all bearing fruits. These I transplanted and they are now growing freely and bear berries regularly, but only the four of the original one hundred purchased plants have set berries. None of these berry-bearing plants grows anything like so quickly as the non-fruiting ones, which is quite natural. Both the male and female organs of the flower seem, when examined under a small hand glass, to be perfectly normal. Can it be that certain of these plants are self sterile, as is the case with many fruit trees, and that the reason why so many sterile plants of Pernettya are in cultivation is owing to the fact that, being more vigorous, nurserymen have propagated chiefly from them. I think an elucidation of this mystery would be of interest to many people, for I know of several who have non-berrying plants only. Here a large bed has been occupied with the plants for eight years to no purpose and the Pernettyas will be done away with as the garden is developed. *Evan G. Jones, Shalesbrook Gardens, Forest Row, Sussex.*

Loss of Scent in the Musk.—"Through a yard scented with Musk I was lead . . . ." Rosita Forbes wrote in her narrative "With Raisuli in Morocco," which appeared in the December number of *The Sphere.* Can this be the simple and homely little plant whose lost fragrance has set up such a world-wide hue and cry? *W.*

SOCIETIES.

BRITISH CARNATION.

The twenty-ninth floral meeting of this Society was held at the R.H.S. Hall, Vincent Square, Westminster. In spite of dull weather of the past few months the quality of the blooms shown were of high standard, but the exhibition was shorn of much interest because the open competitive classes were so poorly represented.

In the evening the members of the Society with their friends spent a very enjoyable evening at Frascatti's Restaurant. Among those present were Mr. and Mrs. J. S. Brunton, Mr. and Mrs. G. Monro, Mr. and Mrs. W. E. Wallace, and many of the leading Carnation growers.

Awards of Merit.

Carnation Tess.—A magnificent pure white perpetual flowering variety of large size. The flowers are full petalled, slightly scented, and the calyx is of the non-splitting type. The pot plants exhibited demonstrated that the variety is of excellent habit, the stems being wiry and stiff and the growth vigorous. Shown by Mr. Geo. West, The Nurseries, Datchet, Bucks.

Carnation Eldora.—An excellent fancy variety of white ground and clearly pencilled with red, the markings being much heavier than in the variety Benora. The flowers are of medium size, full, and held erect on the stems. The growth and habit are excellent as judged from the pot plants exhibited with the flowers. Shown by Messrs. Allwood Bros., Haywards Heath.

Open Classes.

The Silver-Gilt Challenge Cup presented by Geo. Monro, Esq., was gained by Mr. C. Engelmann, the only competitor in the class for twenty-five blooms of seven varieties of Carnations. The flowers, arranged in tall glass vases, were of fine quality, and the varieties represented were Topsy, the finest crimson variety; White Wonder; Peerless, of glowing rose-pink colour; Cupid, a good, long stemmed, salmon-pink variety; Belle Washburn, scarlet; Maine Sunshine, yellow; and Laddie, a large salmon-pink flower of good texture. The same firm was also successful in the class for three varieties, twelve blooms of each, for which the Challenge Cup presented by J. S. Brunton, Esq., was awarded. The varieties staged were White Pearl, a mammoth flowered variety of good form; Nigger, very deep crimson; and Cupid. In a similar class restricted to varieties of American novelties distributed since January 1st, 1921, Mr. C. Engelmann was again awarded first place and showed Surprise, salmon-pink; Donald, a 1924 novelty of bright crimson; and Improved Ward, bright carmine-rose.

In the class for one vase of not fewer than one hundred flowers of one variety there were two competitors, the first prize being awarded to Mr. C. Englemann, who showed Nigger, and the second prize to Mr. Geo. West, Gables Nurseries, Datchet, Bucks, who staged a salmon-pink variety.

Mr. C. Engelmann was again the sole exhibitor in the class for one vase of fifty blooms in three or more varieties and showed a fine collection of flowers of about twenty varieties for which he was awarded the Cup or Work of Art presented by Mr. E. M. Draps, Antwerp.

Mr. W. H. Page excelled in the class for a vase of British-raised Carnations, one variety not yet in commerce. He showed Edward Page, a magnificent flower of good substance and of a glowing carmine-rose colour; it is doubtless an exceptionally fine market variety. The class for one vase of a crimson variety attracted keener competition, there being four entrants. The first prize—a Silver Challenge Cup presented by Geo. Monro, Esq.—was gained by Mr. W. H. Page, who showed Topsy in excellent condition. The second and third prizes went respectively to Messrs. W. E. Wallace and Son, Eaton Bray, and Mr. C. Engelmann who also showed the variety Topsy.

For two boxes of thirty-six Carnation blooms, in two distinct varieties, packed for market, Mr. C. Engelmann, the only competitor, was awarded first prize. The flowers were admirably packed and in excellent condition. The same competitor took chief honours in the class for three vases of blooms of three distinct colours, with Laddie, salmon-pink; Aviator, scarlet; and Mrs. Hamilton Fellowes, violet-purple. Mr. H. T. Mason, Hampton Hill, Middlesex, was awarded second prize.

For the vase of twelve blooms of a white variety, Mr. C. Engelmann was again the first prize-winner and showed White Pearl. With this vase he also gained the Society's Silver-Gilt Medal as the premier vase in the classes devoted to exhibits of twelve blooms. Mr. C. Engelmann was likewise successful in gaining the first prizes in the classes for a rose or deep pink, salmon pink, red, crimson, yellow, and fancy varieties, and showed respectively Improved Ward, Laddie, Aviator, Topsy, Saffron, and Marion Wilson. He also gained first place in the class for a vase of twelve blooms of various colours.

The Reginald Cory Challenge Cup, presented by Reginald Cory, Esq., for the best half-dozen Carnation plants in bloom, three or more varieties, was awarded to Sir Charles Nall-Cain (gr. Mr. T. Pateman), Brocket Hall, Hatfield, who showed magnificent specimens of Mrs. W. Hemus, Pink Sensation, and Topsy. The second prize went to Mrs. H. D. Foquet Sutton (gr. Mr. W. Sharpe), Sidmouth Grange, Earley, Bucks, and the third to Miss Muriel Pixley, Wooburn House, Bucks.

Amateur Classes.

The competition in the Amateur Classes was very keen, and the Lord Howard de Walden's Silver-Gilt Challenge Vase for a semi-circular group of Carnation plants occupying a space of thirty square feet was won by Sir Charles Nall-Cain, who displayed well-flowered specimens of exceptional merit and of a wide range of colour. The second prize went to Major Pam (gr. Mr. F. Streeter), Wormley Bury, Broxbourne, who showed a group in which pink and rose coloured varieties predominated, and the third to Mr. E. Tysack, Colyton, Oakleigh Park, London, N.

In the class for a decorative arrangement of not more than a hundred blooms, Lt.-Col. Sir Randolph Baker, Bart., D.S.O. (gr. Mr. A. E. Usher), Ranston, Blandford, showed magnificent vases of Laddie, White Wonder, Warren Wilson, Topsy, Surprise, Aviator, Pocahontas, and Saffron, and obtained the first prize; the second prize went to Major Pam.

Mr. F. Clipstone, Melchett Court Gardens, Romsey, was awarded first prize for a vase of blooms in at least three varieties of British-raised Carnations. Second, Mr. Herbert Blake, Tower Cottage, Alverstoke.

Lt.-Col. Sir R. Baker, Bart., D.S.O. (gr. Mr. A. E. Usher), Ranston, Blandford, who secured premier honours for a highly decorative vase of not more than twenty-five blooms, in one or two varieties, effectively combined yellow and violet-purple flowers. Mr. G. Carpenter, West Hall Gardens, Byfleet, was second, with an excellent arrangement of scarlet and crimson flowers. Third, Mr. R. Lay, Shapewell House, Potters Bar.

In the single vase classes for five blooms Mr. G. Carpenter was first with fine blooms of White Pearl in the class restricted to white varieties. Mr. P. Lay secured first place in the class for a light rose or deep pink variety with excellent flowers of R. F. Felton, whilst perfect blooms of Laddie gained first place for Lt.-Col. Sir R. Baker, Bart., in the class for a salmon-pink variety.

In the class for scarlet varieties, in which three competed, the first prize was awarded to Lt.-Col. Sir R. Baker, Bart., for very high quality flowers of Aviator, and in the class for crimson varieties Mrs. T. H. Otter (gr. Mr. S. J. Kinglets), Queenswood, Ottershaw, Chertsey, was first among six competitors with mammoth flowers of Carola.

Lt.-Col. Sir. R. Baker was first in the class for purple, mauve or yellow varieties and showed the violet-purple variety, Mrs. H. Fellowes; he was also the first prize winner in the class for a fancy variety with Benora, white ground, flaked with scarlet.

Lt.-Col. Sir R. Baker obtained first prize in the class for a decorative bowl for the drawing room, and used the salmon-pink Laddie with a few blooms of the deep crimson Topsy, effectively set amongst Asparagus plumosus and A. Sprengeri foliage. Mrs. Alex. Robinson, Briar Hedge, Bourne End, was second with mauve and apricot-buff flowers. –

For a vase of Stuart Low and Co.'s novelties, containing not fewer than four distinct varieties, two blooms of each, Lt.-Col. R. Baker obtained premier honours and he was likewise successful in the class for a vase of perpetual-flowering varieties raised by Messrs. Allwood Bros. For a bowl of perpetual-flowering Malmaison varieties, Mr. Walter Hyde, Kempton Park, Sunbury-on-Thames, was the first prize winner with an excellent selection.

Decorative Classes.

There were five competitors in the class for a decoration of Carnations arranged on a table 6 ft. × 3 ft., and every exhibitor adopted the same style of arrangement and employed a centre piece with smaller vases set at the four corners. Lt.-Col. Sir R. Baker, Bart., used buds and fine blooms of the variety Laddie, a bright decorative salmon-pink variety daintly set amongst Asparagus foliage. The second prize winner, Mrs. Alex Robinson, had an effective table with the fancy variety Wivelsfield Apricot, displayed amongst Croton and Asparagus foliage and twigs of Willow. The third prize went to Mr. Alfred Swann, Colwood Lodge, Hayward's Heath.

In the Florists' section the Covent Garden Challenge Trophy was awarded to Mr. H. Shearn, Tottenham Court Road, for a decorative exhibit of Carnations on a table space 12 feet by 6 feet. Along the front of the exhibit was a large sign of the American florists' slogan, "Say it with flowers"; the bold lettering was made with pink Carnation blooms set in a ground work of moss. He also showed a huge decorated candle, a picture, the framework of which consisted of Carnations, bouquets and baskets of flowers. The second prize was awarded to Mr. Carlton White, New Bond Street, who had an exhibit, the chief feature of which was a gondola made of pink blooms, and very effective baskets of flowers. In the class for the best bouquet of Carnations the premier award went to Mr. H. Shearn, and the second prize to Mr. Carlton White; both exhibitors employed white Carnations only; while in the class for the best decorative basket, Mr. Carlton White took chief honours, Mr. H. Shearn being placed second. The winning basket consisted of the mauve and cerise variety Circe, blended with the yellow Saffron, the blooms being interspersed with coloured Ivy leaves and Asparagus foliage.

Smaller Amateur Classes.

In the class for a vase of perpetual flowering Carnations raised by Messrs. Allwood Bros., the only competitor was Mr. Walter Hyde, who secured first prize with a magnificent vase of choice varieties. The remaining classes in this section were for single vases of five blooms, and the same competitor secured first prizes for a light rose or deep pink variety, with Reginald Cory; for a salmon-pink sort with Eileen Low; a crimson with Topsy; purple, mauve, or yellow, with Mrs. Hamilton Fellowes; fancy with Eastern Maid. All the flowers shown by this exhibitor were of the highest quality.

Non-Competitive Groups.

Messrs. Allwood Bros. were responsible for a very fine exhibit consisting of about three thousand blooms in thirty or so varieties. The flowers were of first-rate quality and arranged in ornamental vases and epergnes against a black velvet background. Along the back were tall epergnes of Edward Allwood, a fine scarlet flower; White Enchantress, Wivelsfield Apricot, and Triumph, and other highly meritorious varieties were Laddie, Topsy, Jessie Allwood, an excellent yellow perpetual Malmaison; Coral Glow, Circe, Chintz, and Eldora, a new fancy variety which secured an Award of Merit. There was also a vase of new seedlings containing many excellent things. The same firm also had an oval bed in the centre of the Hall planted with Dianthus Allwoodii and perpetual-flowering varieties, the whole being surrounded with an edge of turf (Large Gold Medal).

The large group staged by Mr. C. Engelmann was of great merit; the flowers were in excellent condition while the arrangement was highly decorative, Asparagus foliage being employed with good effect, and large specimen Palms were arranged along the back. Of the many varieties exhibited, the chief were White Enchantress, Laddie, Tarzan, scarlet; Goliath, salmon pink; Scarlet Laddie, a new sport; Topsy, and Peerless, rose pink (Large Gold Medal).

Messrs. Stuart Low and Co. exhibited a very select group of Carnations arranged with good taste, and in which prominent varieties were White Pearl, Red Ensign, Eileen Low, a gorgeous salmon pink variety; Aviator, scarlet; Lord Lambourne, a new variety with large, well-formed red flowers; Mrs. T. Ives, salmon-pink; Arnos Grove, heliotrope; and Hon. Nita Weir, salmon pink (Gold Medal).

Messrs. Keith Luxford and Co. displayed many excellent vases in their noteworthy group of which Scarlet Carola, Cheerful, cerise pink; Mikado, Aviator, and Cupid are a selection.

Other exhibits in the Hall were of miscellaneous subjects which had been on view on the two previous days of the R.H.S. Show, a full report of which appeared in our issue of the 29th ult. The exhibitors were Messrs. J. Carter and Co. (Hyacinths); Messrs. W. Cutbush and Sons (forced shrubs and alpines), Mr B. Finney, Mr. J. J. Kettle, and the Misses Allen Brown (Violets), Messrs. Maxwell and Beale (alpines), Mr. W. G. Whitelegg (Azaleas).

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Friday, March 28.—*Committee Present:* The Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, A. Coningby, J. Cypher, J. Evans, G. Giles, Capt. W. Horridge, J. Howes, A. Keeling, E. W. Thompson, J. Whitham and H. Arthur (Secretary).

First-Class Certificates.

Vuylstekeara Brewii, Haddon House variety (*Odta. Brewii* × *M. vexillaria robusta*), a large flower of intensely dark maroon colour, the lip being of a lighter shade and heavily veined; *Odontoglossum Doreen, variety The Belle* (*crimium* × *Empress of India*), a variety with petals of a deep reddish-chocolate shade margined with white, heavily blotched sepals and a large, flat lip. From P. Smith, Esq.

Odontoglossum crispum, West Point Model, a full, round, white flower of good substance; the flat lip is slightly blotched. From Mrs. Gratrix.

Odontoglossum crispo-Solon var. Gratrixiae, a perfectly formed flower, heavily and evenly marked. From S. Gratrix, Esq.

Awards of Merit.

Odontioda Renown, variety Victor (*Odta. Coronation* × *Odm. Victory*). From A. Hanmer, Esq.

Odontoglossum Laurentia var. Lilaceum (*Jasper* × *Olympia*). From P. Smith.

Odontonia Thais (*Miltonia Bleuana* × *Odontoglossum l'Aiglon majesticum*). From Messrs. Charlesworth and Co.

Group.

A Silver Medal was awarded to Messrs. Cypher and Sons, Cheltenham, for a group of Orchids in variety.

ROYAL HORTICULTURAL.

The following awards have been made to Kales by the Council of the Royal Horticultural Society after trial at Wisley.

Awards of Merit.

Cottager's, (especially for growing in small gardens) sent by Messrs. W. H. Simpson and Sons, Birmingham

New Winter, sent by Messrs Dickson and Robinson, Manchester.

Highly Commended.

Tall Curled, sent by Messrs. Toogood and Sons, Southampton. Tall Green Curled, sent by Messrs. Nutting and Sons, Ltd, 106, Southwark Street, London. Westland, sent by Messrs. Zwaan and de Wiljes, Scheemda, Holland. Northern Plume, sent by Messrs. D. T. Brown and Co., Poulton-le-Fylde, Lancashire.

Commended.

Moss Curled Exhibition, sent by Messrs. Barr and Sons, 12 & 13, King Street, Covent Garden, London.

READING AND DISTRICT GARDENERS'.

The fortnightly meeting of this association was held on Monday, the 24th ult.; Mr. M. Goddard presided over an excellent attendance of the members. An illustrated lecture on "Fruit Tree Pests" was given by Mr. F. O. Mosley, F.L.S. Entomologist at the Reading University College. Among the principal pests touched upon were the Lackey Moth, Winter Moth, Woolly Aphis or American Blight, Codling Moth, Apple Sawfly, Currant Earwing, Big Bud, Apple and Pear Scab, Silver Leaf and Peach Leaf Curl. Their characteristics were fully dealt with and suggestions and formulas for their control and eradication were given.

In the competition for three dishes of vegetables there were only two entries. The first prize was awarded to Mr. D. Turner, Coley Park Gardens, for Onions, Potatos and Parsnips, and the second to Mr. A. W. Gower, Calcot Grange Gardens, for Onions, Broccoli, and Seakale. In the non-competitive section, First Class Certificates were awarded to Mr. F. H. Protten, The Oaks, Shinfield Road, Reading, for three vases of magnificent Violets, Mrs. Lloyd George, Princess of Wales, and La France; and to Mr. W. Broomfield, The Gardens, Cliffe House, Mapledurham, for a very fine specimen of Giant White Cyclamen.

LAW NOTE.

FOREST LITIGATION.

A law suit of much interest to landowners and buyers of forest areas has been definitely decided in the Scottish Court of Session. It was an action at the instance of Messrs. William Black and Son, homewood timber merchants, Brechin, Forfarshire, with the consent of the Lord Advocate, as acting for the Board of Trade, against Mr. William Edgar Horne, of Lairg, Sutherlandshire, seeking declaration that they were the owners of the trees and timber within Gunn's Wood, on the estate of Lairg: that they alone were entitled to enter that wood for the purpose of cutting and felling the timber, and to erect saw-mills, bothies, and other plant necessary; and that in any event, the defender had no right of ownership in the trees. They also asked interdict against the defender preventing or hindering them from entering Gunn's Wood and cutting and felling the trees and from erecting the necessary plant.

It would appear that in September, 1917, the Duke of Sutherland entered into a minute of agreement with the Assistant Controller of Timber Supplies (Scotland), as representing the Board of Trade, for the sale to the latter at a price of £109,000, of a large number of trees standing on his estates in Dornoch and Lairg, including the trees in Gunn's Wood, stated to be of the value of about £10,000. In May, 1919, the Duke of Sutherland sold the estate of Lairg to the defender in this case, and the disposition contained certain reservations in regard to the timber in Gunn's Wood. In 1920, the pursuers' offer was accepted by the Board of Trade for the standing and felled timber in Gunn's Wood, and this was intimated to the defender in September, 1920. Negotiations were entered into on behalf of the Board of Trade with the view of arranging an extension in favour of the pursuers of certain time limits provided by the agreement. These negotiations failed, the defender in March, 1923, finally refusing his consent thereto. Hence the action was raised to determine the respective rights of parties. The pursuers maintained that, in virtue of the agreement, and as deriving right from the Board of Trade, they were owners of the trees in Gunn's Wood, or, at least, were entitled to enter upon the lands and to cut and remove the trees. The defender maintained that the property in the trees never passed to the pursuers or their authors, and that any right or licence to enter on the land or to cut and remove the trees was subject to a time limit which had now expired.

Lord Murray, in the Outer House, sustained the defender's pleas on the merits and assoilzied him from the conclusions of the action, with expenses against the pursuers. The pursuers reclaimed to the First Division, but they have now withdrawn the reclaiming note and consented to it being dismissed. Thus the case ends with Lord Murray's judgment becoming final.

Obituary.

David Fleming.—For many years associated with the firm of Dickson, Brown and Tait, of 57, Cross Street, Manchester, Mr. David Fleming passed away on Tuesday, the 25th ult., after a very brief illness. Influenza following a chill developed into pneumonia and the end came with dramatic swiftness. Mr. Fleming has been connected with the firm for over fifty years. He served his apprenticeship with Messrs. Smith and Simons of Glasgow, and came to Manchester as head shopman to Messrs. Dickson, Brown and Tait, about 1873, afterwards taking charge of the office and travelling among the firm's customers. About forty-three years ago he was taken into partnership on the death of Mr. Brown, and since the retirement of Mr. Tait, Senr., in 1911, carried on the business as senior partner along with Mr. Tait the younger. He was an extremely capable man, going about without any fuss but always ready for business and having a quiet unobtrusive manner which made him very popular and endeared him to a large number of friends.

CATALOGUES RECEIVED.

Foreign.

Vilmorin-Andrieux and Cie, 4, Quai de la Megisserie, Paris.—Plants.

P. M. Pudor, Puyallup, Washington, U.S.A.—Delphiniums; Irises.

MARKETS.

COVENT GARDEN, *Tuesday, April 1, 1924.*

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz.	10 0–18 0
—elegans	10 0–12 0
Aralia Sieboldii	9 0–10 0
Araucarias, per doz.	30 0–42 0
Asparagus plumosus	12 0–15 0
—Sprengeri	12 0–18 0
Aspidistra, green	48 0–72 0
Asplenium, per doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Cacti, per tray, —12's, 15's	5 0– 7 0
Cinerarias, 48's, per doz.	18 0–24 0
Crotons, per doz.	30 0–42 0
Cyrtomium	10 0–15 0

	s. d. s. d.
Erica gracilis, 48's per doz.	24 0–30 0
—60's per doz.	12 0–15 0
—persoluta, 48's, per doz.	30 0–42 0
Genistas, 48's, per doz.	18 0–21 0
Marguerites, white, 48's, per doz.	18 0–21 0
Nephrolepis, in variety	12 0–18 0
—32's	24 0–36 0
Palms, Kentia	24 0–30 0
—60's	15 0–18 0
—Cocos	24 0–36 0
Pteris, in variety	12 0–21 0
—large 60's	5 0– 6 0
—small	4 0– 4 6
—72's, per tray of 15's	3 6– 4 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	15 0–18 0
—cuneatum, per doz. bun.	12 0–15 0
Asparagus, plumosus, per bun.	
long trails, 6's	4 0– 5 0
med. sprays	2 6– 3 6
short ,,	1 0– 1 6
—Sprengeri, per bun.	
long sprays	3 0– 3 6
med. ,,	2 0– 2 6
short ,,	1 0– 1 3
Camellias, 12's, box	3 0– 3 0
Carnations per doz. blooms	2 0– 4 6
Croton leaves, var., doz bun.	2 0– 2 6
Daffodils, Barri, per doz.	4 0– 6 0
—King Alfred, single, per doz. bun.	12 0–15 0
—Emperor, per doz. bun.	9 0–12 0
—Golden Spur, per doz. bun.	4 0– 5 0
—Horsefieldii, per doz.	5 0– 8 0
—Sir Watkin	10 0–12 0
—Victoria, per doz. bun.	10 0–12 0
Fern, French, per doz. bun.	1 0– 1 3
Forget-me-not, per doz. bun.	9 0–10 0
Freesia, white, per doz. bun.	2 0– 3 0
Iris, blue, per doz. blooms	3 0– 4 0
—mauve, per doz. blooms	3 0– 3 6
—white, per doz. blooms	4 0– 4 6
—yellow per doz. blooms	4 0– 5 0
Roses, Richmond, per doz.	6 0– 9 0
—Mme. Butterfly, per doz. blooms	6 0– 8 0
—White Roses, per doz.	6 0– 9 0
—Columbia, per doz.	5 0– 8 0
—Ophelia, per doz.	6 0– 9 0
—Sunburst, per doz.	6 0– 8 0
Sweet Peas, per doz. bun.	6 0–12 0
Tulips, single white, per doz. bun.	18 0–30 0
—double white, per doz. bun.	24 0–30 0
—double yellow, per doz. bun.	27 0–30 0
—double red, per doz. bun.	24 0–30 0
—double pink, per doz. bun.	24 0–30 0

	s. d. s. d.
Tulips—	
—single mauve, per doz. bun.	24 0–30 0
—single yellow, per doz. bun.	18 0–24 0
—single red, per doz. bun.	18 0–24 0
—single bronze, per doz. bun.	18 0–24 0
—single pink, per doz. bun.	15 0–18 0
—Darwin, Clara Butt, per doz. bun.	30 0–36 0
—Rev. Ewbank, per doz. bun.	18 0–24 0
—Mrs. Farncombe Sander, per doz. bun.	24 0–30 0
—Psyche, per doz. bun.	24 0–30 0
—Wm. Copland, per doz. bun.	30 0–36 0
French Flowers—	
—Allium (Star), per pad, 36's, 48's	10 0–12 0
—Stock, double white, per pad, 24's, 30's	6 0– 7 0
—Acacia (Mimosa) per bun.	1 0– 1 6
—Anemones, double pink, per doz. bun.	3 0– 4 0
—single mixed, per doz. bun.	4 0– 5 0
—Marguerite, yellow per doz. bun.	4 0– 5 0
—Narcissus Soleil d'Or, per doz. bun.	5 0– 6 0
—Narcissus, Pheasant Eye, per doz. bun.	4 6– 9 0
—Violets, single, per doz. bun.	2 0– 3 0
— — Parma, per bun.	2 0– 2 6
Heather, white, per doz. bun.	9 0–12 0
Lilac, white, per doz. sprays	7 0– 9 0
Lilium longiflorum long, per doz.	7 0– 8 0
short ,, ,,	— 6 0
—rubrum long, per doz. blooms	— 6 0
—short ,, ,,	4 0– 4 6
Lily of the Valley, per doz. bun.	24 0–36 0
Orchids, per doz.	
—Cattleyas	13 0–24 0
—Cypripediums, per doz. blooms	6 0– 8 0
Pelargonium, per doz. bunch, double scarlet	12 0–15 0
Richardias (Arums)—per doz. blooms	5 0– 7 0
Smilax, per doz. trails	3 0– 3 6
Violets, doz. bun.	3 0– 5 0

Remarks.—Supplies generally are somewhat limited from home growers. Best quality Daffodils and Narcissus ornatus remain firm in price. Of Tulips, Darwins are the most prominent at the present time, including such varieties as Clara Butt, Wm. Copland, Mrs. Farncombe Sander, Bartigon and Inglescombe Yellow. Also other good crimson and red varieties unnamed. Carnations were a much shorter supply this morning and their prices are improving. The quantities of red Roses are still insufficient to meet the present requirements. Other varieties given in the list are more numerous and arriving in first-class condition. A few blooms of Mme. Abel Chatenay will be on sale this week. Sweet Peas are now arriving in a better condition; white, pink and mauve are the principal colours. Spanish Iris are now available in good condition, especially the dark blue varieties: yellow and mauve sorts are not so numerous although they are both selling freely. Large consignments of Daffodils and Narcissi have been received from the Channel Islands during the past week; these are the cheapest flowers in the market at the present time. Narcissus ornatus is arriving in good condition from Guernsey. Consignments of flowers are being received from Cornwall, including Anemone St. Bridgid, Anemone fulgens, Violets, Primroses and Irises, and the blooms arrive in a more satisfactory condition than those from the Channel Islands. Amongst French flowers several subjects begin to show signs of finishing, Paper White Narcissus being practically over. Double White Stock and Allium (Star of Bethlehem) are taking the place of the former for floral work. Ranunculus is preferred to the single Anemones, which are not travelling well just now. Marguerites, Marigolds and Wallflowers are all selling freely.

Fruit: Average Wholesale Prices.

Apples—	s. d. s. d.
—Bramley's Seedling, best, bus.	16 0–18 0
—Second, bus. ...	9 0–10 0
—Spitzenberg ...	12 0–15 0
—Oregon Newtown	15 0–20 0
—Winesaps ...	10 0–14 0
Nova Scotian—	
—Nonpareil ...	20 0–30 0
—Ben Davis ...	24 0–30 0
Bananas, singles	16 0–27 6
—doubles	16 0–27 6
Grapes—	
—Almeira, barrel	20 0–25 0
—Belgian	2 6– 4 0
—Gros Colmar ...	4 0– 6 0
Grape Fruit—	
—Jamaica ...	25 0 30 0
—Florida... ...	25 0–30 0
Lemons—	
—Messina, case ...	12 0–15 0
—Messina, box ...	8 6–10 0
—Murcia	12 0–17 6
Nuts—	
—Brazil, cwt. ...	55 0–65 0

	s. d. s. d.
Oranges—	
—Jaffa	24 0–26 0
—Seville	12 0–15 0
—Spanish 300 ...	16 0–28 0
— — 360	12 0–20 0
— — 504	12 0–15 0
Pines, each ...	6 0–10 0
South African Pears—	
—Beurré Bosc ...	4 6– 6 0
—Josephine de Malines	5 6– 7 0
—Winter Nells	5 0– 7 0
—Doyenné du Comice	8 0–12 0
—Grapes, Gros Colmar, case	15 0–20 0
—Red Hanepoot	8 0–12 0
—WhiteHanepoot	8 0–12 0
—Raisin Blanc ...	10 0–12 0
—Lady Downes .	12 0–14 0
—Barbarossa ...	12 0–14 0
Plums	8 0–10 0
Strawberries, forced	10 0–25 0

Vegetables: Average Wholesale Prices.

	s.d. s. d.
Asparagus—	
Cavaillon ...	5 0– 6 0
Paris Green ...	6 0– 7 0
Lauris	4 0– 8 0
English, forced	4 0– 7 0
Beans—	
Finest	2 6– 2 9
Best	2 0– 2 3
Madeira, Basket	6 0–10 0
Beets, cwt. ...	12 0–15 0
Carrots, new, per doz. bun. ...	9 0–10 0
Carrots, cwt. ...	8 0–10 0
Cauliflower, doz.	3 0– 5 0
Chicory	0 8–0 10
Celery, fan ...	1 6– 2 0
Celeriac	2 0– 4 0
Cucumber, 3 doz., 3½ doz., 4 doz....	22 0–24 0
Endive, per doz.	3 0– 4 0
French Lettuce, doz.	1 6 2 6
—long, doz. ...	9 0–10 0
Green Artichokes, doz.	2 6– 3 6
Greens, bag ...	5 0– 7 0
Mushrooms—	
Forced, lb. ...	1 9– 3 0
Mint, doz.... ...	4 0– 8 0
Onions, Valencian, cases ...	13 0–15 0
—Dutch	11 6–13 0
—English, cwt. ...	13 0–15 0

	s. d. s. d.
Parsley, bushel ...	12 0–14 0
Parsnips, cwt. ...	8 0–10 0
Peas, forced ...	3 0– 4 0
Potatos, Dunbar, per ton ...	260 0–280 0
—King Edward,	200 0–230 0
—others ...	180 0–210 0
—Canary Island, case	14 0–16 0
—Algerian, lb. ...	0 4–0 4½
—Forced	0 6½– 0 8
Radishes—	
Round	1 6– 2 6
Long	1 0– 1 6
Rhubarb, per doz., forced ...	2 0– 2 6
—Outdoor, per doz. ..	6 0– 9 0
Savoys, doz. ...	5 0– 6 0
Scotch Kale, bushel ...	3 0– 4 0
Seakale, punnet	2 6– 3 6
Spinach, bushel	10 0–12 0
Tomatos, Canary Island	9 0–16 0
—English	3 0– 4 0
Turnips, new, per doz. bun. ...	10 0–12 0
Turnips, cwt. ...	6 0– 9 0
Turnip Tops, bag	5 0– 6 0

Remarks.—Business has not been at all satisfactory during the past week and values in many cases have given way somewhat. Consignments from South Africa are on a large scale, consisting mainly of Grapes and Pears. Argentine growers are also sending choice fruits, such as Pears, Peaches and Plums. A few English Gros Colmar Grapes are still arriving, probably the last of the season; fair supplies of Grapes are available from Belgium. Imported Apples are not such a good trade as recently, and while in very good condition, the English Bramley's Seedling, Lane's Prince Albert and Newton Wonder that are arriving are selling at lower prices. A few more English Tomatos are coming to hand, but their prices remain at a high level. Tomatos from the Canary Islands are in poor condition with unsatisfactory results. Cucumbers are plentiful and their prices are fairly well maintained. Guernsey grown new Potatos remain a good trade. Forced Beans from Worthing and Guernsey are in steady demand. Madeira Beans are in better condition than last week but are selling slowly. Considerable quantities of Broccoli have been marketed, principally from France, and the value of this vegetable is lower. Mushrooms remain in steady demand with practically no change in quotations. Forced Rhubarb is a drug on the market, unless of first-class colour; the larger arrivals of "natural" Rhubarb adversely affecting its sale. Asparagus is variable in quantity and prices are inclined to be unsteady. Green vegetables are scarce but are quoted slightly lower than of late. The Potato trade is quiet.

GARDENING APPOINTMENT.

Mr. H. S. Kemp, for the past seven-and-a-half years Gardener to William E. Long, Esq., Hurts Hall, Saxmundham, Suffolk, as Gardener to Captain Charles Coney, Brampton Hall, Halesworth, Suffolk.

ANSWERS TO CORRESPONDENTS.

Apples with Glassy Skins: *Hampshire.* The fruits exhibited the condition known as glassiness, which is a purely physiological effect brought about by water penetrating the intercellulary spaces instead of air. You will find an interesting letter on glassiness in Apples by Mr. W. H. Divers in *Gard. Chron.*, December 2, 1922, p. 327.

Camellias: *G. T.* The Camellia foliage is affected with the scale insect (Aspidiotus Camelliae), and the pest will be readily observed both on the upper and under surfaces of the leaves, appearing as brown, scale-like structures. The insect secretes honey dew which makes the foliage very wet and sticky, and in the honey dew thus secreted a black, smutty fungus grows. The tree should first be sprayed with a warm solution of nicotine and soft soap, made by dissolving ¼-lb. of a good brand of soft soap in a gallon of water and adding one fluid ounce of nicotine (95% purity) to ten gallons of the soapy solution. The effect of the spray will partially cleanse and soften the foliage so that the after operation of sponging may be performed more satisfactorily. The sponging of both sides of the leaves will be found long and tedious work, but no remedy is more effective. The soapy solution should be used quite warm and care should be taken to see that all the scales are removed. Two ounces of soft soap to the gallon of water will be sufficiently strong enough to employ for sponging the foliage and the operation will doubtless have to be repeated after about ten days.

Cyclamens Unsatisfactory: *T. W. F.* The specimen sent for examination is attacked by mite, which for the main part confines its injury to the young leaves; the gall-like appearances visible on the older leaves were evidently produced while the plants were small. The insect pierces the tissues and sucks the liquid contents of the plant cells, eventually producing a distorted, dwarfed plant. When the flowers are affected they wither and die prematurely. The plants should be dipped in a solution of Campbell's Nico-Soap made by dissolving one teaspoonful of the preparation in one gallon of water, the operation being repeated about once a fortnight. It is, however, a difficult matter to cure completely old plants which are so badly infested as the specimen you forwarded. If you possess seedling plants these should be closely examined and it would be wise to give them the above treatment throughout their growing period.

Disfigured Pelargonium Leaves: *F. J. D.* The disfiguration of Pelargonium leaves is not due to the presence of either fungus or pest, and no doubt the damage has been caused by overwatering the plants or by allowing water to settle on the foliage.

Mushrooms in Fields: *H. J.*: The best time to plant Mushroom spawn in pasture is from May to July. The earlier lots of spawn should be put in where the ground is dry, and if any portion of the field slopes towards the south these positions should be spawned early. The later spawnings may be made on the flat ground; it will enable the crop to be gathered over an extended period. Pastures regularly grazed by sheep give the best crops naturally and are best for artificial spawning. The cakes of spawn should be broken into pieces about the size of a Walnut and inserted at distances of five to six feet each way, but if only one crop is required closer spawning may be done. It is a good plan to lift the turf about a foot square, break up the soil two or three inches in depth and add a few horse droppings before inserting the spawn which should not be lower than two to three inches below the surface. The piece of turf should be carefully replaced taking care not to crush the spawn when treading the turf into position. The Mushrooms will appear in from six to ten weeks according to the season, but the crop will fluctuate, the Mushrooms being plentiful after heavy rains and scarce if the weather is hot and dry.

Tar on Pipes: *S. A. E.* As you appear to to have removed most of the tar from the pipes by washing with caustic soda and also because of the fact that other crops have been cultivated with success in the greenhouse we do not think that the Tomatos are being injured by the fumes. There are many diseases which attack Tomatos, particularly in the young stages of growth, and before we advise you further on the matter we should like to examine specimens of the affected plants.

Treatment of Old Vines: *J. J.* With old vines in such a bad condition that the Grapes shank as you report, we think it would pay you to clear the vinery and plant new vines. Your best plan will be to make the best of the vines this season and get everything in readiness for planting early next year. The old soil should be cleared out, the house washed and painted, the drainage lifted and replaced to the depth of one foot after being cleaned. Commence with a border of limited size, confined to the inside of the house, 3 feet in width and 2½ feet deep, with a retaining wall of turf placed grass side downwards; 18 inches or 2 feet of new border could be added every two years until the whole space is filled. To each cartload of turf, chopped up roughly, add 1 cwt. of quarter-inch bones, two barrow-loads of old lime rubble, ½ bushel of quick-lime and one or two barrow loads of road scrapings. Mix all well together and protect the compost from rain until it is required. Cover the drainage between the turf wall and the wall proper with turves, grass side downwards, and fill in with the prepared compost, making this thoroughly firm as the work proceeds.

Communications Received.—W. J. R.—W. E. B.—A. H.—J. H.—H. J. C.—T. H.—T. J. H.—E. F. C.—F. F.—H. S. K.—E. E. A.

TRADE NOTE.

M.M. A. Idor and Durieux, 8, rue de St. Germain, Croissy, Seine and Oise, France, have registered a new large-flowering Carnation with the International Bureau of Registration connected with the Fédération Horticole Professionnelle Internationale. The new variety is named Souvenir de Rene Idor and it is described as of very strong growth, free flowering, with good stems and large blooms of a flesh-white tint. The variety received a Certificate of Merit from the National Horticultural Society of France on February 14 last.

SCHEDULES RECEIVED.

Yorkshire Flower Show and Gala.—Sixty-second show to be held on June 18, 19, and 20.—Secretary, Mr. A. Anderson, The Assembly rooms, York.

Moston Horticultural Society.—Annual show to be held on Saturday, August 30th, 1924, in the Simpson Memorial Hall, Moston Lane, Moston.—Secretary, Mr. D. Brown, 32, Hanson Road, Moston.

Southport Floral Fete.—Exhibition to be held in the Victoria Park, Rotten Row, Southport, on Wednesday, Thursday and Friday, August 27, 28 and 29, 1924.—Secretary, Mr. T. E. Wolstenholme, Town Hall, Southport.

The Roundhay (Leeds) Horticultural Society.—Annual exhibition to be held on Tuesday and Wednesday, July 15 and 16.—Hon. Secretary, Mr. George E. Horner, 9, Jackson Avenue, Roundhay, Leeds.

THE
Gardeners' Chronicle
No. 1946—SATURDAY, APRIL 12, 1924.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 48·1.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 9, 10 a.m.: Bar, 30°; temp. 42° Weather—Cold and overcast.

Soil Bacteria and Soil Fertility.

AN interesting summary of knowledge of the part played by soil bacteria in maintaining and increasing soil fertility is given by Prof. Stoklasa, Director of the State Experiment Station of Czecho-Slovackia, in a contribution to the *International Review of the Science and Practice of Agriculture.** Although we are not disposed to regard all the statements made in the article as proven beyond dispute, the main conclusions cannot be doubted and the prospects held out by Prof. Stoklasa of further advances in soil fertility are certainly promising. After reviewing briefly the beginnings of knowledge of soil bacteria, the author proceeds to recount recent discoveries in the mode of life and activity of the bacteria and other organisms present in the soil. Despite the remarkable discoveries which have been and are being made in the manifold activities of soil bacteria, it is difficult for the inexpert in bactereology to realise that such minute organisms can play so mighty a part in constructing and maintaining fertile soil. Many of the bacteria living habitually in the soil are so minute as to be invisible under all but the highest powers of the microscope. Even when magnified so highly as may be they show but little detail of structure. Yet when the numbers in which they are present in soil are realised, the mind is more prepared to recognise the magnitude of the work which they carry on in the soil. Professor Stoklasa estimates that in a pound weight of average soil the number of bacteria is some 20,000 millions. As the soil improves the number of bacteria found in it increases until in good garden loam there are three times as many as in an ordinary soil. On the other hand, in poorer forest land the number falls to almost half that of the average arable land. Numbers of such magnitude convey but little meaning to our minds; but another estimate made by Prof. Stoklasa is more illuminating. He computes that the weight of bacteria in the first sixteen inches of soil amounts to about a ton and a half per hundred acres. Add to this the weight of other organisms living in the soil—Fungi, Algae, Protozoa, and the smaller animals, and the total weight of the living constituents of a hundred acres is found to amount to nearly eight tons. These soil organisms live in the fertile surface, and in the deeper levels (below 1½ feet) the numbers fall off very rapidly. Of the variety of work which these micro-organisms do in the soil in the course of living their own lives much is already known, though more awaits discovery. Some fix nitrogen, some nitrify ammonia, that is, convert the latter substance into nitrates; some decompose phosphates and others act on other mineral compounds of the soil. Thus their work is by no means confined to the breaking down of organic matter into humus. They play a part directly and indirectly in bringing mineral substances into the vital circulation by rendering them available to plants. More than this, they produce in the course of their respiratory processes large quantities of carbon-dioxide which helps soil fertility and crop production in many ways. Prof. Stoklasa's measurements of the amount of carbon-dioxide found in soil serve to prove that the more fertile the soil the richer is it in carbon-dioxide. Mere mineral earth-weathered rock free from organic matter, contains but little carbon-dioxide; a little more is found in meadow and forest land; three or four times as much in average agricultural soils under cereals; six or seven times as much in soils under Clover or other Legumes or in good Sugar Beet soils, and about eight times as much in good garden mould. The carbon-dioxide liberated by the respiratory activity of the soil-organisms plays a large and varied part —according to Prof. Stoklasa—in enhancing soil fertility. This gas, dissolved in the soil water, renders phosphates soluble, and hence more available for absorption by the roots of plants. It re-acts with other mineral compounds to form bi-carbonates and thereby brings other of the mineral substances required by plants—potassium, magnesium, etc.—into solution. The Professor also claims that the surplus carbon-dioxide escaping into the air is absorbed by the leaves of low-growing plants and is used by them in the photosynthetic manufacture of organic carbon compounds. He claims to have shown that a progressive increase of the percentage of carbon-dioxide in the atmosphere leads to a remarkable increase in crop production. In yet another way the respiratory activity of soil organisms is important to cultivation and that is by raising the temperature of the soil, and the author computes that down to a depth of twelve inches the soil temperature may be raised by so much as 1-2° C. as a consequence of the respiration of its microflora and fauna. Finally, Prof. Stoklasa refers to experiments made in the use of special fertilizers—"nitrogenous humus" and "phosphatic humus"—experiments which recall the pioneer labours of the late Prof. Bottomley. Both of these preparations are rich in bacteria. The latter is made from natural, crushed phosphate mixed with peat and inoculated with bacteria. From experiments made at Prague with "nitrogenous humus," which is prepared by fermenting calcium cyanamide, crops have been increased so much as two-fold by the use of small quantities, say eight hundredweights per acre, of the new "biological fertiliser," which apparently acts partly by reason of its richness in soluble nitrogen compounds and partly by endowing the soil with vast numbers of bacteria. Further information on this subject will be awaited with much interest, but apart from positive results that may be secured as a consequence of these experiments, Prof. Stoklasa's review of the soil micro-organisms and their activities shows that there are still great possibilities of increasing yet further the fertility of the soil, and that the agriculturist of the future will realise that to cultivate crops successfully he must also cultivate soil bacteria.

The Paeony.—Mrs. Edward Harding, the American lady Paeony enthusiast and amateur, seems desirous of extending her interest in that flower in more directions than one on this side of the Atlantic. She has just offered to the National Horticultural Society of France, of which she is a member, the sum of 500 francs to be awarded for the best book on Paeonies. As we cannot call to mind any standard work in French on this subject, it will be interesting to await the result of some competent French authority to deal with it.

Spalding Daffodil Show.—The Spalding Bulb Growers' and Market Gardeners' Association has made arrangements to hold a Daffodil Show in the Corn Exchange, Spalding, on Saturday, April 26th. Although the schedule is not yet to hand, we understand that many valuable prizes and challenge cups are to be offered, and growers, both amateur and trade, are invited to send exhibits. Schedules and full particulars of the Show may be obtained from Mr. H. W. Quincey, 14, Pennygate, Spalding.

Journal of the R.H.S. Gardens Club.—The issue for 1923 of this *Journal* of the past and present members of the Royal Horticultural Society's Gardens and Vincent Square staff contains, as a frontispiece, a reproduction of the portrait of the late Mr. S. T. Wright, which the Club has placed in the Laboratory at Wisley. Amongst the several interesting articles there is an account, by Mr. J. E. White, of the transplanting of large trees at Wembley Park, for which an especially designed tree-transplanting machine was constructed. Mr. White describes the method by which the machine works and states that during the period it has been employed, about forty large trees have been transplanted, some of them exceeding forty feet in height, with trunks more than one foot in diameter. There is an unsigned appreciation of the late Rev. W. Wilks and another of the late Mr. F. Jordan, who was appointed caretaker of the Vincent Square Hall in 1904 and retired in 1921. The long list of members shows that old Chiswick and Wisley men are to be found in many parts of the world.

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* International Institute of Agriculture. *Bureau of Agricultural Intelligence.* New Series, Vol. I, No. 4, October–December, 1923.

Horticultural Show in Erfurt.—The annual meeting of the Society of German Rose Lovers will be held this year in Erfurt; and at the same time (September 6 and 7) local horticulturists are arranging an exhibition of cut Roses and other seasonable flowers.

Electric Light as an Aid to Plant Growth.—The use of electric light as an aid to plant growth has been receiving the earnest attention of the Westinghouse Electric Company and some very interesting experiments on the effect of electric light in forcing bulbous plants have been conducted in the greenhouses of Messrs. Peter Henderson and Co., Baldwin, L.I. Details of these experiments are given in our American contempory *The Florists' Exchange* for March 8. The subjects used in the experiments were Daffodils, Hyacinths, and Early and Darwin Tulips; the bulbs were potted in early November and brought into the greenhouse on February. The lights used consisted of eight 500-watt, type C, Mazda lamps to which reflectors were fitted so as to give perfect illumination over the entire bench surface. Half of the collection of plants were given the electric light treatment, the other half being grown only by the aid of natural light; cultural conditions in each case were exactly the same. Beginning on February 4 the lights were turned on every night from 8 p.m to 1 a.m. It is stated that within a week differences in the two lots of plants could be seen, and those receiving the electric light treatment were much in advance of the control plants. Early Tulips were obtained in full bloom within fourteen to eighteen days; ordinarily they require three to three-and-a-half weeks for forcing into flower. Hyacinths bloomed in seventeen days as against about a month under normal conditions, and Daffodils were fit to cut in two weeks, thereby saving at least a week of the time they would otherwise have required. Darwin Tulips were in full flower in twenty days, the normal forcing into bloom taking from four to five weeks with this subject. From a commercial point of view the results are regarded as being of great importance, as there is a great saving in labour and fuel by the use of the electric light treatment, whereas the cost of the electricity consumed is insignificant.

Success of a Young Scotch Forester.—Mr. P. W. Mackay, who left his native village, Fochabers, Morayshire, as a lad twelve years ago, has control of one of the largest forest areas in Canada, as manager of the Laurentian Forest Protective Association, Ltd. Brought up under the shadow of Gordon Castle, the Duke of Richmond and Gordon's beautiful Scottish seat, Mr. Mackay had ample opportunities of study in the woods around the castle. His firm is an association of corporations, pulp and paper companies, lumber companies, etc., with a special organisation for dealing with fires throughout their vast forest areas. Mr. Mackay has under his charge 4,130,870 acres of Canadian forests, with a headquarters staff in Quebec, a field force of six inspectors, each responsible for 1000 square miles, and eighty regular fire rangers for patrol work, assisted by many others during the danger season. In his latest report to the directors, Mr. Mackay states that sixty-eight fires took place last year. Twenty-three towers were built during the year, making forty-six of these observation points. The towers are connected by telephone with inspectors' headquarters and rangers' camps, and several of them with the Quebec offices. Eighty-one patrolmen travelled 91,376 miles in the twelve months. This year there is to be added 7,000 square miles of new territory, which means that Mr. Mackay will control an area equal to half the total size of Scotland. His chief work, meantime, is in the organisation of the new Eastern Division of the Laurentian, and he hopes to have the assistance of two hydroplanes to co-operate with the ground patrol in the detection of fires. He is the eldest son of Mr. George Mackay, Fochabers.

Mr. William Stacey.—The completion of a jubilee of service with one family is invariably a matter of general interest and Mr. William Stacey is to be congratulated upon having completed his fiftieth year of service as head gardener at Mainsforth Hall, Ferry Hill, co. Durham, the residence of General and Mrs. Surtees. To celebrate this auspicious occasion General and Mrs. Surtees invited a few of Mr. Stacey's old gardening friends to dine with them and him, and among those present were Mr. W. Turner, previously gardener to Lord Boyne, Mr. Watson, previously gardener to the late Sir W. Eden, and Mr. W. A. Jenkins, Curator of Ropner Park, Stocton-on-Tees, the last of whom claimed a friendship with Mr. Stacey extending over forty-eight years. Following the dinner, General Surtees spoke in the highest terms of appreciation and esteem of Mr. Stacey and pointed out that not only was he held in great regard by his employers, but also by his immediate neighbours and the principal people in the surrounding district, in fact wherever Mr. Stacey was known he was appreciated and loved. Two of Mr. Stacey's sons were present at the dinner and General Surtees observed that it had been his privilege to know no fewer than fourteen members of the Stacey family and all of them were very excellent people. Mr. Stacey was presented with a splendid silver-mounted cut glass spirit bottle from Mrs. Surtees, the Hon. Mrs. Ramsey and Mrs. Bell (daughters of General and Mrs. Surtees), and from General Surtees a tinted portrait of himself with an expression of hope that Mr. Stacey might be spared for many years to enjoy the evening of his life at Mainsforth, among his family and friends. Mr. Stacey, who was born in Somersetshire, has had an interesting career. At the age of thirteen he commenced the business of life in the gardens of Philip Ketch Lewers, Esq., at Curry Rivel, where he stayed for about six years. Fortunately almost every kind of flower, fruit and vegetable was cultivated and the gardens were well kept, both out-of-doors and under glass. Pears were cultivated extensively and no fewer than thirty-two varieties were grown. From Curry Rivel Mr. Stacey went to the Taunton Nurseries, but unfortunately while there his health gave way. Later, when he had recovered, he became gardener to a Mr. William Paul, near his home in Somersetshire, where he stayed for some time, and subsequently took a situation in Surrey. Here the late Col. Surtees got to know him and asked him to take charge of the gardens at Mainsforth Hall, where he still remains.

MR. WILLIAM STACEY.

A Carnation Feast in 1823.—A correspondent has sent us an extract from the pages of *The Salisbury and Winchester Journal* of August 18, 1823, as follows:—"After a discontinuance, for many years past, in this city, a revival of the Carnation Feast took place at the New Inn, in New Street, on Wednesday last, when several pots of remarkably fine flowers were shown, The first prize was adjudged to Mr. Mitchell, of Andover; and the second to Mr. Kingston, gardener to the Rev. Canon Hume; and the third to Mr. Warren. A most excellent dinner was provided on the occasion by Mr. John Patterson, the landlord of the house. The company, which was respectable and numerous, spent the day with the utmost harmony and conviviality; and, before parting, a liberal subscription was entered into for the next year."

Appointments for the Ensuing Week.—Monday, April 14—Bath Gardeners' Society's meeting; United Horticultural Benefit and Provident Society's meeting. Tuesday, April 15—Royal Horticultural Society's Daffodil show (2 days); Croydon and District Horticultural Society's meeting; Winchester Horticultural Society's lecture. Wednesday, April 16—Morley and District Paxton Society's meeting; Glasgow and West of Scotland Horticultural Society's meeting. Friday, April 18—Eastbourne Horticultural Society's meeting. Saturday, April 19—Newcastle and District Horticultural Society's Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Joslin's St. Albans Grape.*—Have any of the purchasers of this Grape yet fruited it, so as to prove whether it be a distinct variety or not? I bought two or three plants of it, and it is my present impression that it is nothing more than the Chasselas Musqué or Wilmot's Muscat; at least my plants present no possible difference from that variety either in foliage or fruit. On referring to Mr. Thompson's report of it in the Journal of the Horticultural Society, I find that it agrees with that variety in every particular. No one can have a higher opinion of Mr. Thompson's pomological knowledge than myself, and it was solely on his recommendation that I became a purchaser; yet one would suppose that the Chasselas Musqué was a Grape common enough not to be mistaken for a new variety; its only fault is its liability to crack long before it becomes ripe; this has nearly thrown it out of cultivation. *John Spencer, Bowood.* [If you have got the true Joslin's St. Albans you will observe that its leaves are more glossy on the under sides than those of the Chasselas Musqué. Mr. Joslin states that the Chasselas Musqué has not been grown at his place for upwards of sixteen years; that it is an early Grape, whereas the St. Albans is decidedly a late one. "The variety in question," he states, "came from seed of my own sowing, be what it may." Much has been said about this Grape. Some have doubted its being distinct from the White Frontignan, although the one has smooth leaves and the other has not. A few months will prove that it has not been overpraised in the Journal of the Horticultural Society. It is showing fruit in the Royal Gardens at Frogmore; we have seen it at Mr. Bevan's Cambridge House, Twickenham, about a week ago, and it appears to be an extraordinary bearer.]—*Gard. Chron. April* 14, 1849.

Publications Received.—*Weeds of South Africa.* Part II. By K. A. Lansdell. Reprint No. 45, 1923. The Government Printing and Stationery Office, Pretoria, South Africa. Price 3d.—*Manual of Cultivated Plants.* By L. H. Bailey. Macmillan and Co., Ltd., St. Martin Street, W.C. Price 31s. 6d. net.

BULB GARDEN.

CRINUM YEMENSE, DEFLERS.

The above named plant was originally introduced from Arabia Felix by an Italian merchant, a connoisseur and admirer of the products of the kingdom of Flora. Apparently the first form of the name was C. jemenicum, Hort. ex Damman in *Gardenflora* (1892) 26 Fig. 12, and in the *Index Kewensis* it was put down as = latifolium. The next name, or form of it, was C. jemense, Hort. Damman, ex *Gard. Chron.* 1893, 1, 658, and stated to be the same plant as the preceding. It was described and figured in the *Bulletino della Societa Toscana di Orticultura*, 1892, 133, fig. 6, under the name of Crinum jemense, Deflers. In the same journal for 1901, Mr. C. Sprenger, an Italian nurseryman, in describing the new hybrid Crinum Alexandræ, gives as the parentage C. longifolium album × C. yemense, and states that the latter came from Arabia Felix. This form of spelling would commend itself to our language, for Arabia Felix is an ancient name given to the province of Yemen, in the south-western corner of the Arabian Peninsula, bordering on the Red Sea and the Gulf of Aden, and was given on account of its fertile character and the large tracts that were fit for cultivation.

The Italian *Bulletin* above mentioned stated that this Crinum was hardy and lived outdoors all the winter at Naples, but that the large bulbs could be lifted and preserved during the winter in the same way as Dahlia tubers and planted out again in spring. The leaves were described as of a beautiful glossy green commencing to grow about the middle of March, while the first flowers made their appearance during May or June. The flowers were produced in a large, irregular umbel, with unequal pedicels, and the outer ones were almost pendent owing to the number of them, and the long curved tubes. They were also pure white, shining like silk, and very sweetly scented The plant grew well in ordinary garden soil, remained green most of the year, and flowered during the greater part of summer. It was cultivated for a long time at Cairo, and in the open from the commencement; and there it was described by the celebrated French traveller, Deflers, who was then living in Egypt. Apparently it reached Naples in 1892 from the latter country.

The first and oldest account of the above Crinum was evidently that of the botanist himself who described it, namely, M. Albert Deflers, the French botanist and traveller, who made between five and six hundred excursions into the interior of Yemen for the purpose of collecting plants. Most of his identifications and new plants he described very briefly in his book *Voyage au Yemen* *

In this book the brief description is given as follows:—"Crinum yemense sp. nov.—At the foothills of Mount Schibâm (Haràz), and of Mount Kahel, near Menakhah; altitude 6,900-7,200 ft. (Excursion no. 335).—In stony places ascending along the ladder-like way (or path) from the village Schibâm to the stronghold Kaukabân; altitude 7,800 feet (Excursion no. ?). A species allied to C. abyssinicum, Hochst. Herbarium of Schimper, Abyssinia, section II., no 1374. Doubtless it is distinguished principally by its umbels with more numerous flowers (10-20) and by the very amplified dimensions of the perianth which attains a length of 8 to 9½ inches (20 to 22 centimetres)."

Elsewhere in his book he states that Arabia Felix includes six provinces, of which Yemen and Asyr abut on the Red Sea. They have a temperate climate the natural privilege of the mountainous region of Beled Gebeli. They are watered by lively springs and perennial streams of water, covered with cultures, plantations and forests; they produce an impression of an oasis by comparison with the sandy plains and burning heat of the littoral.

Dr. L. Wittmack in *Gartenflora*, 1892, pp. 26 and 27, f. 12, describes the flowers as very large, shining silver-white, with rose-coloured stripes or bands, and the buds exhale a very fine perfume. He also states that Professor Dr. Schweinfurth likewise praises this Crinum in his *Scheilderung der Flora Arabiens*, through the medium of the Geographical Society.

The figure in *Gartenflora* shows a plant with a short neck above the soil, and broad, lanceolate, acuminate, ascending and arching leaves, above which are the large umbels of nodding and drooping flowers,

Crinum yemense is also figured in the *Wienner Illustriste Garten Zeitung*, 1896, p. 239, along with several other species of the genus.

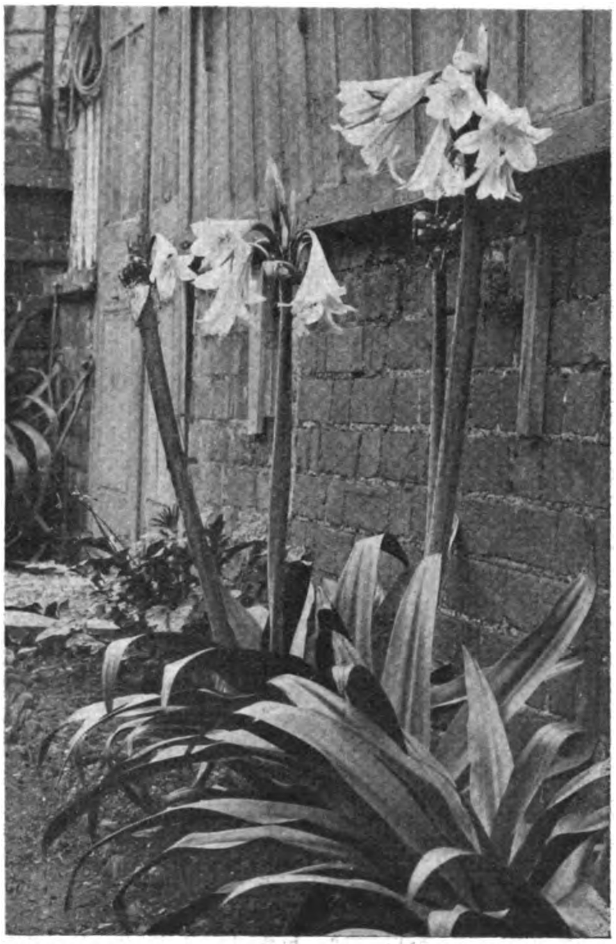

FIG. 86.—CRINUM YEMENSE FLOWERING IN MESSRS. ROBERT VEITCH AND SON'S NURSERIES, EXETER.

It would appear that the firm of Messrs. Damman et Cie., Naples, were the most active of the cultivators of this Crinum, for M. C. Sprenger of that firm gave more than one account of their work in hybridising Crinums in the *Bulletino della Societa Toscana di Orticultura*. Sprenger's first account of new hybrids was given in 1901; but in 1902 he recorded amongst others C, Malbranchii (C. Moorei × C. jemense), C. D'Anconæ (C. jemense × C. Moorei), C. roseum (C. jemense × C. Moorei), and C. maximum (C. Schmidtii × C. jemense). It is thus evident that Sprenger was responsible for this spelling of the name. The information about C. jemenicum in *Gartenflora* (1892), 26, Fig. 12, also came from the firm of Dammann et Cie,, and 1892 is given as the year of its introduction to Europe.

The illustration above quoted shows a plant with lanceolate, acuminate, channelled, and broad leaves, spreading and rising over the ground, with two scapes rising slightly above the foliage and bearing seven and seventeen or more flowers respectively. The structure of the flowers of C. yemense is very similar to that of C. latifolium as figured in the *Botanical Register*, t. 1297, but the flowers of the latter have a pale brown or greenish tube and white segments that are much tinted with pale rose. This Crinum was introduced from India in 1806, and requires stove treatment. It is widely spread in Tropical Asia, and, no doubt, varies into geographical forms; and the late Mr. J. G. Baker considered C. longistylum, Herb., C. moluccanum, Roxb., C. speciosum, Herb., and C. insigne, Schultes, as slight varieties of C. latifolium. The comparative hardiness of C. yemense is, perhaps, its greatest asset from a garden point of view.

The accompanying illustration (Fig. 86) shows plants flowering in a narrow border outside a greenhouse in Messrs. Robert Veitch and Son's nursery at Exeter. Mr. Peter Veitch states that "Crinum yemense is a strong grower, making a bulb from 3 to 4 inches in diameter. It has leaves 2½ to 3 feet in length, and 2 to 2½ inches wide, tapering to a point, and they are dark green in colour. The height of a good plant is 2½ to 3 feet. The flowers are formed on a strong stem and they are white and sweetly scented. There are generally ten or twelve flowers to a spike, and usually four to six of these are open at a time. The individual blooms are each four to five inches across. The plant is hardy." *J. F.*

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* *Voyage au Yemen, Journal d'une Excursion Botanic faite en 1887. Dans les Montagnes de l'Arabie Heureuse.* Par A. Deflers, 1889, Paris.

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Dendrobiums.—As they pass out of flower, many plants of the numerous hybrids and species of Dendrobiums of the nobile type, will be in a sufficiently advanced state of growth for re-potting. The best time to undertake this operation is when they commence to develop new roots from the base of the young growths, which usually occurs where the latter are a few inches high. Ordinary flower pots or Orchid pans, without side holes, are the most suitable receptacles, and they should be of just sufficient size to hold the plant comfortably. Dendrobiums root freely in Osmunda-fibre and fresh Sphagnum-moss, chopped into rather small portions, with some crushed crocks incorporated. In re-potting well-established plants that have filled their pots, it may be difficult to turn them out without causing injury to the roots, in which case the pot should be broken and removed in small portions. If the old soil is decayed, pick out as much of it as is practicable, and cut away all useless back pseudo-bulbs, leaving three behind each leading growth. Potting should be done rather firmly, keeping the base of the new lead slightly below the rim of the receptacle. For some time after root disturbance the plants should be given only sufficient water at the roots to prevent the pseudo-bulbs from shrivelling, as there is a danger of both young roots and growths damping off if too much moisture is applied at this period; but when root action is well extended, the supply of water may be increased gradually, and if satisfactory growth is being made, the plants and their surroundings should be well supplied with moisture. In the case of healthy specimens that have ample pot room, if the compost is in good condition, a little of the old materials only need be removed from between the roots and fresh compost substituted.

Propagating Dendrobiums.—If it is desired to increase the stock, the old pseudo-bulbs that have been removed may be utilised for the purpose. They should be labelled and placed in a warm house for a week or two to dry, after which they may be cut up to a single dormant eye that has not produced a flower bud; leave sufficient length of stem at the bottom to insert in the compost. Dendrobiums should be grown in the warmest house, with an abundance of light at all times, affording only sufficient shade to prevent the leaves from scorching.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Grass Seed.—Although it is preferable to sow lawn grass seed in September rather than in the spring, especially on light soils, it is not always practicable to do so, and various circumstances make spring sowing necessary. It is useless to sow until the soil is in good condition, but everything should be got into readiness so that sowing can be done at the first favourable opportunity. Rake the surface to a fine seed bed, cover the seed lightly by gentle raking and make the surface firm with footboards. Where birds are troublesome measures must be taken to prevent their depredations, as it is essential to get the whole surface quickly filled with grasses, or stronger growing weeds will soon take possession of the lawn.

Sweet Peas.—Plants from the principal sowing made in February, will now be ready for transplanting to their flowering positions. It is advisable to plant on a slightly lowered surface, leaving a ridge of soil on each side of the young plants to protect them during their early stages of growth. Short, twiggy sticks should be placed each side of the plants immediately after planting, deferring the placing of the taller ones in position until growth becomes active.

Humea elegans.—Plants of this deliciously fragrant subject being grown for the scent garden or for groups in subtropical beds, should not be allowed to become pot-bound. Shift them into larger pots as required, exercise care in watering and keep the plants growing vigorously until they can be planted out.

Violets.—Plants grown in frames for winter supplies are passing out of flower and those on the borders will carry on the succession. The frame plants may now be divided, choosing only vigorous, well-rooted crowns and planting them in well-prepared ground on a partially-shaded border. Violets have a particular liking for decaying vegetable matter, hence the ground should be heavily dressed with this material. The period of flowering may be considerably lengthened by growing the plants in various positions such as, for example, at the foot of north and south walls; it is essential, however, to maintain a constant supply of young plants.

PLANTS UNDER GLASS.

By F. J. Clark, Gardener to Lt.-Col. Sir George Holford, Westonbirt, Tetbury, Gloucestershire.

Chrysanthemums.—An essential detail in the successful cultivation of Chysanthemums is to pot them in the young stage before they become potbound. The main batch of plants should be in a condition to receive their second shift into 5½-inch and 6-inch pots by the middle of April. If potted at that time the plants should be ready for their final potting at the end of May or early in June. At the second potting extra strong growing varieties should be put into 6-inch pots from which they may be transferred finally into receptacles 9 inches and 10 inches in diameter, whilst for most of the single varieties and for the weaker growing sorts pots of 5 inches and 5½ inches diameter will be large enough at the second potting, and those of 8 inches diameter at the final shift. Chrysanthemums require rich, open soil, and for this intermediate potting I recommend a mixture of strong, fibrous loam, seven parts, (one part being represented by a barrowload) leaf-mould two-and-a-half parts, old hot bed manure two parts, and coarse sand half a part; adding to the whole one bushel of crushed charcoal, and to each barrowload of this compost, one 6-inch potful of bonemeal, one 3-inch potful of soot, and one 3-inch potful of Clay's fertilizer or "Le Fruitier." Mix the materials thoroughly and if the compost can be prepared some ten days or more before it is required for use and be turned occasionally, so much the better. The pots should be washed thoroughly, carefully crocked and loam fibre placed over the drainage materials. Pot fairly firmly, place one short stake to each slender plant and remove them to a cold frame in which has been placed a bed of clean coal ashes.

Treatment of Newly-Potted Chrysanthemums.—Give the plants a slight surface watering only, having made sure that they were not dry at the roots when they were turned out of the old pots. This watering should suffice for several days, after which the soil may be watered thoroughly. Syringe the plants overhead twice daily and keep the frames closed for a few days. Should the weather be particularly bright it may be necessary to shade the plants lightly for a few days to prevent them from flagging. Under this treatment the roots will soon become established in the soil, when the amount of ventilation may be increased daily, and in about ten days or a fortnight the frame lights removed entirely during the daytime on all favourable occasions. Watch closely for attacks of green and black aphides, and on their first appearance dust the points of the growths with Tobacco powder. The leaf mining maggot has proved very troublesome amongst Chrysanthemums of late years. Careful and daily hand picking of the affected foliage practised from the first appearance of the pest is, I believe, the only sure remedy.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Thinning Grapes.—In thinning Grapes the berries should never be touched by the hand, and care should always be taken by the operator not to rub them with the hair of his head. Once the bloom is removed in this way it never develops again, and, moreover, it often causes rust on the berries. The operator should use a short forked stick to hold the bunch firmly when clipping out the berries. The most suitable time for thinning Grapes is in the early morning, when the vinery is comparatively cool and the berries freer from moisture than when the house is closed in the evening. It is always advisable to thin Grapes on two or three occasions. Remove at the first operation all inside and stoneless berries. The final thinning should be done before stoning takes place.

Successional Figs.—Figs growing in borders in the later house have commenced to grow freely. The temperature of the house at night should not fall below 55° to 60°, with a rise of 10° or more during the day time. The house may be closed early to make full use of sun heat. The syringe may be used freely on all hot, sunny days, but judgment should be used in this respect when the outside conditions are cold and sunless. Figs are generally grown in restricted borders, therefore timely attention should always be given with regard to watering. Let the roots have a plentiful supply of moisture and ample supplies of liquid manure during the trees' growing season. Attention should also be given with regard to the removal of superfluous growths in order to obviate undue crowding of the young shoots. Pinch all growths that are not required for extension purposes at the fifth leaf to furnish the tree with useful spur wood, and remove all fruits that are badly placed near the wire. The final thinning of the crop may be deferred until it can be plainly seen which fruits swell.

Strawberries.—As the berries approach ripeness less water should be applied to the roots or the former may become watery and lacking in flavour. Withhold all stimulating manure, and where it is possible the plants should be stood on a shelf in a cooler house to which air can be admitted day and night. Under these conditions the flavour of the fruit will be greatly improved.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Strawberries.—Young Strawberry plants that were not put out in the autumn may be planted any time during April with a good chance of success. Strawberries grow freely in rich, open soils, and the ground should have been well dug and manured in readiness during the winter. Whether planting home-raised stock or runners from nurserymen, the plants should be in small pots, as they may then be transplanted without any check, and will fruit during the coming season. Plant firmly, water each runner thoroughly, and then mulch the rows with half-decayed manure. Strawberries that have been forced may, after hardening them, be planted out, and if they do not develop fruit in the late summer, will do well next season. The roots should be soaked thoroughly with water before planting them, and they should be spread out to enable them to take hold of the soil. Treat them the same as advised for small plants in the matter of mulching, etc.

Disbudding.—This operation should not be overlooked. Where growths of Apricots are sufficiently advanced shoots growing towards the wall or otherwise badly placed should be removed and those on spurs thinned to two or three, as there is nothing to be gained by leaving too many. The operation of disbudding, in the case of all fruit trees, should be done on two or three occasions. The fruit also should be thinned gradually, taking off the smallest and worst placed specimens at the first operation and removing the next smallest at the second disbudding. There will then be not so much likelihood of the fruits intended for the crop dropping.

The Fruit Prospects.—All fruit trees are very backward and the prospects of a good fruit yield are favourable. Apple trees were never so well furnished with fruit buds, and the same is true of Pears. Damsons also are well set with fruit buds, and as our Damson trees were root pruned last autumn I expect a good crop of this fruit. An espalier tree of Pear Pitmaston Duchess is crowded with fruit buds, and so are wall and espalier trees of Doyenné du Comice. A tree of this Pear in these gardens on a wall facing west always produces much finer fruits than one in the open. Marie Louise, Thompson's, Olivier de Serres, Louise Bonne of Jersey, and the stewing Pears, Vicar of Winkfield and Catillac are all well budded and give promise of good crops.

THE KITCHEN GARDEN.

By WALTER Y. STAWARD, Gardener to Mrs. JOHN FEENEY, The Moat, Berkswell, Warwickshire.

Salsify.—When the ground is in good working order a sowing of Salsify seed should be made, allowing 15 inches between the lines. When the seedlings are about six inches high thin them to one foot apart. While the plants are young work the hoe freely between the lines.

Maize or Sugar Corn.—Seeds of Maize may be sown in pots, started under glass in heat, gradually hardened off and planted out when all danger of frost is past. Seeds may also be sown in the open in May in drills, and if the seedlings are given plenty of room and abundance of water during dry weather they will succeed.

Celeriac.—Seed raised some time ago will now be ready for pricking off into boxes; place a good layer of rotten manure in the bottom and fill the box with good sandy loam. Press the surface fairly firmly before commencing to prick out the plants.

Early Cauliflower.—As soon as the young seedlings are fit to handle prick them off into frames. Water them carefully at the start as they are liable to damp off; keep them somewhat on the dry side until they have taken hold of the fresh soil.

Leek Beds.—Where a considerable quantity of Leeks remain in the ground they should be lifted and laid in on a cool shaded border. This will retard their growth for a while and release the ground, which should have a good manuring and be well dug in preparation for future crops.

Asparagus Beds.—Keep plenty of light dry material handy for covering the young heads of Asparagus in case of frost, as a few degrees of frost will soon spoil them. If the beds have not already had a dressing of salt this should be applied now.

Seeds.—Further sowings should be made of Cabbage, Kohl-Rabi, Kale, Broccoli, Lettuce, Couve Tronchuda, and Leeks. From earlier sowings the seedlings will now be coming through the ground; work the hoe between the lines [to keep weeds in check and the surface soil open.

FLORISTS' FLOWERS.

SWEET PEAS TRAINED ON THE SINGLE STEM SYSTEM IN THE OPEN.

It is a mistaken notion that Sweet Peas trained with a single main stem produce only a few flowers compared with those grown naturally; those who adopt the single stem method will not be likely to revert to the ordinary system, for the quality of the flowers, their size and substance, together with increased length of stem, are advantages that more than compensate for the extra trouble.

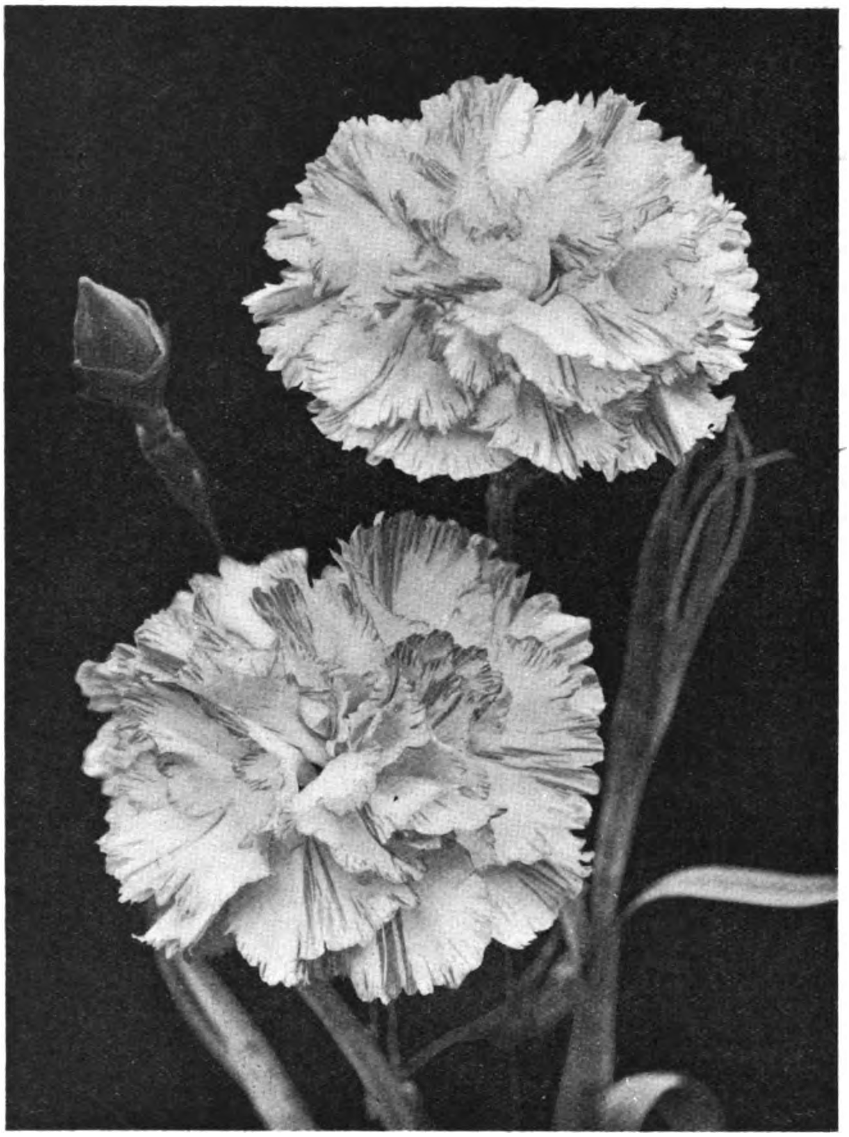

FIG. 87.—CARNATION ELDORA; AWARD OF MERIT, BRITISH CARNATION SOCIETY, MARCH 27 AND R.H.S. MEETING, APRIL 8 (SEE PP. 195 AND 211).

To obtain the best results the seeds should be sown in the autumn in pots or boxes. I prefer to sow in clean 48-sized pots, filled about two-thirds their depth with soil, consisting of two-thirds sifted loam and one part mould, with sand and burnt soil added. Place eight seeds in each pot, cover them with soil, and water the seed pot with a fine rose can. The pots should be placed in a cold frame, plunged in leaves to prevent frost from cracking them. Cover the soil with paper and keep the frame close to favour a quick germination of the seeds. As soon as the seedlings appear, air should be admitted freely, and after a few days the lights may be removed altogether, but kept handy for replacing in the event of heavy rains, snow, or severe frost.

The plants will make very little growth during the winter, but by the end of January they should be ready for potting singly in large 60's-pots. The plants should be returned to the cold frame and kept somewhat close for a few days. They should then be exposed to all weather, except those previously mentioned. When the third leaf appears they should be stopped, to promote the development of strong shoots from the base, the strongest one of which, if single stems are desired, should be retained.

The grower should use his discretion as to whether he stops the plant before or after potting. However, it must necessarily be done some time previous to or after potting to prevent the plant receiving a check.

If large blooms are required, trenches should be made in readiness for planting, autumn being the best time for this operation. The trenches should be two feet wide and about three feet deep, and not less than six feet from trench to trench. The best method is to place the top soil on one side and the sub-soil on the other, provided the latter is of a suitable nature, otherwise it is best removed altogether and good loam substituted. The bottom of the trench should be loosened with a fork and a layer of well-decayed manure placed over the soil, followed by a layer of soil; the addition of burnt garden refuse is also very beneficial when filling in the trench.

It may be desirable to place a further layer of manure in the trench, but in any case the dung should be at least one foot below the surface.

By the end of March or beginning of April the plants should be ready for planting out of doors; much depends on the weather and conditions of the soil as to when it is done. Plant in double rows on top of the trenches at a distance of one foot apart each way. Plant firmly and, if necessary, give the soil a good watering.

It is advisable to place the supports in position at the time of planting, and the work should be carried out in the following manner. Wires should be strained along each row on posts about five feet in height, and secured to strong posts at either end, with a support in the centre, according to the length of the row. A neat pole, or Bamboo rod for preference, eight feet in length should be placed to each plant and made secure to the wire. The growths should be kept tied as required, and all tendrils cut off and side-shoots rubbed out.

Syringe the plants every afternoon to promote growth, and if dry weather sets in, apply a light mulch to the soil and give water as required. When the plants reach a height that is difficult for tying, and there is a danger of strong winds damaging the blooms, they should be taken down, trained along the base and restarted at the bottom. The best method of doing this is to start by taking four plants down and laying them out on a mat carefully. It may be necessary to take more than four down, according to the height the plants have attained. However, if four are taken, number five will be trained along the ground to replace number one. By following round the double row in this manner, numbers 1, 2, 3, and 4 will replace the last four. It will need two persons to perform this operation.

In regard to varieties, much depends on individual taste and the purpose for which the plants are grown. However, it is a good practice to grow sorts that are known to be robust growers and reliable bloomers. At the same time, it is advisable and interesting to try one or two novelties each year. *T. Baines, Langham Oaks Gardens, Colchester.*

ALPINE GARDEN.

POLYGONUM SPHAEROSTACHYON.

Time was when this Himalayan Knotweed was eagerly sought after by the lovers of rarities for the rock garden, but the demand for it has waned considerably, and, though still fairly costly in price, it is within the reach of most alpinists.

Judging its value after some years I have come to the conclusion that it was too highly commended in its early days. It cannot be described as remarkably pretty, but it is a distinct plant which appeals to the keen grower of alpines.

It forms a tuft of long, narrow, stiff-looking leaves, forming a rosette on the soil, and from the midst of this there emerges a stiff stalk some six or more inches high.

At the top of this there is developed a short spike or tuft of bright, pink flowers, of the characteristic form of most of the Knotweeds of the Bistorta type of bloom. The plant flowers late in the season, an attribute which appeals to numbers of growers. It looks very easy to cultivate, but in reality it does not prove itself obliging, and often dies away. The best plants I have seen were on a flat terrace near the base of a rock garden and facing north-east. They were growing in open, well-drained, somewhat light soil, and the owner never allowed them to suffer from want of water. In my own experience it appears to thrive and flower well in a south-east exposure and in light, sandy, gritty soil on rockwork about two feet above the ground level and facing south-east.

It is not an easy plant to propagate, being very slow of increase at the roots, and does not develop seed readily. Planting may be done in the spring.

CAMPANULA EXCISA.

To read the glowing accounts of the loveliness and freedom of growth of Campanula excisa in its native habitats is to make one long for a similar picture of its beauty in our gardens. It is not easy to secure it, in fact, it appears to be an impossibility in our climatic conditions; although it may not really be a question of climate, but possibly one of altitude or soil. I suppose many readers have attempted C. excisa, which is such a quaint little flower, with its bells looking as if a piece had been clearly cut out of the segments with a punch, that we cannot but look upon it with appreciation. That it has proved troublesome in our gardens is undeniable, and I am convinced that it can never be ranked as one of our "easy" Bellflowers, but will always be restricted to the gardens of the enthusiast in rock-gardening, who is prepared to spend a good deal of time among his or her flowers and to give some of them the minute, almost meticulous attentions they may require. We are not greatly helped by a description of where and how it grows at home—in thin grass and by the glacier beds among almost pure granite dust. A rooting medium suggested by an expert is one part of loam to two of rather coarse sand. In my own experience I found that it did well, though not vigorous—on the level pocket of a terrace rock-garden in very dry soil of loam and sand, with grit intermixed and surfaced with fine gravel – almost grit in fact. It was watered with clear water in all dry weather and, with the open, porous soil, the water had free exit. I found it also necessary to go over the plants frequently, and to add more gravel grit to the surface from time to time. It received regular top-dressings of grit and sand every spring and autumn in addition to this supplementary treatment. It increased fairly well, but resented disturbance very much and was liable to be destroyed by attempts to propagate it.

C. excisa is a slender little plant with wiry stems and deep blue flowers, resembling in some degree those of C. Bellardii (pusilla) and with much the same habit of flower. *S. Arnott.*

PUTORIA CALABRICA.

For a warm, sheltered and sunny corner in the rock-garden, where the soil is light and gritty, there are few prettier plants than Putoria calabrica. It is an evergreen perennial, sub-shrubby plant, 8 inches or so high, with glossy, narrow leaves. In early summer it produces clusters of rosy-pink flowers, not unlike those of a Daphne. These last for many weeks, indeed, a well-grown plant will be in bloom nearly all the summer.

P. calabrica is a native of the cliffs of Greece and other parts of the Mediterranean coast, and it will prove quite reasonably hardy in most places if provided with a cosy nook. *J.*

ARABIS AUBRIETIOIDES.

Usually considered to be a little tender, this delightfully pretty plant has withstood this very severe winter without any visible ill effect.

Delighting in a dry, sunny ledge, with a deep and gritty loam as a rooting medium, the plant will soon occupy considerable space, albeit the habit is much more compact than that of A. albida, which the foliage somewhat resembles.

The delightful rosy-pink flowers are freely produced during the spring, and form one of the most attractive features of the rock garden. The plant is a first-rate subject for the alpine house, and is easily propagated from cuttings inserted in August or September. *Ralph E. Arnold.*

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUMS.

Odontoglossums constitute the most popular genus of cool house Orchids; they possess a very wide range in form, size and colour of the flowers and in habit, while the different sections of the genus vary so much in appearance as to suggest the use of sub-generic titles, which might be convenient for herbarium purposes, but for horticultural needs the familiar name Odontoglossum embraces all. Botanically it is correct also, for however great the dissimilarity between the species of the different sections may be they all have the same definite character, *viz.*, the base of the lip parallel with the column, carrying the spreading or deflexed front lobe forward more or less out of the plane of the other segments. This and other characters render the members of the genus readily distinguishable from its nearest ally Oncidium and other genera of the group. The geographical distribution of the Odontoglossums in the mountain ranges of tropical America is very great and each section has adapted itself to the climatic conditions of the region it inhabits.

Extreme types include the following species:—O Oerstedii, a dwarf, tufted species with pure white flowers. It is a charming plant inhabiting the highlands of Costa Rica at about 7,000 feet altitude, and this Orchid has, so far, escaped the wiles of the hybridist. O. Edwardii has tall, branched spikes of violet-purple flowers and this species has been used with other Odontoglossums widely separated from it in raising elegant, decorative hybrids. O. coronarium has stout spikes of wax-like, Chestnut-brown and yellow flowers. It is a shy subject with the hybridist, but Messrs Armstrong and Brown have crossed it with O. Edwardii and raised O. sandhurstiense. O. pulchellum is a slender species with erect sprays of pure white flowers, and this also has given only one hybrid, O. Junora, the other parent being O. Edwardii, the most widely separated species in every respect. The showy class which includes O. grande and O. Schleiperianum has given no satisfactory results to the Orchid raiser. Of the Mexican group O. Rossii. a very pretty species, crosses freely with other Odontoglossums and has numerous progeny, while O. Cervantesii, which is similar in many respects has given but two hybrids, and curiously enough one of them O. Lairessei has been crossed with O. Edwardii, showing that the latter is a most potent parent; it has proved effective with thirty or so other Odontoglossums of all grades, with Ada aurantiaca, Cochlioda Noezliana, Odontiodas, Oncidiums and various Miltonias.

O. Uro-Skinneri, another distinct type, seems to be as facile in the hands of the hybridist as O. Edwardii and its progeny, covers as wide a range, including O. Stamfordiense, a cross with O. bictoniense, which otherwise refused to hybridise.

The small-flowered section with fragrant flowers, in which O. gloriosum (odoratum) is the most familiar, gave early indication of Orchid hybridisation, the natural hybrids of the O. Andersonianum class brought home with O. crispum and others indicating their parentage so clearly that when the suggested crosses were raised in gardens, the provisional records invariably proved to be correct. O. Lindleyanum is one of the most widely distributed species and an elegant plant of the smaller section. It varies considerably in its flowers and has been imported as O. epidendroides, the species on which the genus was founded and of which there is but scanty information, an imperfect type specimen being the only material.

The members of the showy section which Orchidists usually associate with the name Odontoglossum, are primarily O. crispum, which in its various local forms and its great variation is a host in itself; it is also the basal species of a large proportion of our most beautiful hybrids. With it are associated O. Pescatorei, O. triumphans, O. luteo-purpureum, O. Harryanum, O. Hallii and others of the showy section, including the beautiful O. citrosmum, with pendulous racemes of white and rose coloured flowers, widely separated from others of the genus and which may yet be used to create a new section.

Odontoglossum crispum, the queen of the genus, well earns its title by the marvellous beauty and variety of its flowers. Commencing with O. crispum shown by Mr. W. Marshall as O. Alexandrae, and Messrs. Hugh Low and Co., on April 18, 1865, and for which a First Class Certificate was awarded, a continued flow of varieties of this species of great beauty followed, and up to the present time certificates have been given to about two hundred forms. Coloured drawings of the majority of these varieties are included in the collection of paintings formed by the Royal Horticultural Society, and they are open to the inspection of all interested in the subject. All these drawings are fair representations of the flowers at the time they were made, although, as some of them represent blooms from small plants and others have been developed finely by high culture, the plants may seem to be superior in some gardens to-day than they appear in the plates. Interest in O. crispum attracted some of the most enthusiastic of Orchidists; to mention only a few, Baron Sir H. Schröder, who was successful with O. crispum apiatum and other choice forms—his successor Baron Bruno Schröder is no less interested; Sir Trevor Lawrence who had many successes to his credit; Lt.-Col. Sir Geo. L. Holford, who still has the pleasure of admiring his numerous treasures in O. crispum at Westonbirt; the late Mr. J. Gurney Fowler; Mr. de Barri Crawshay, who rendered service in the classification of the genus; Mr. William Thomson; Mr. R. Brooman White, who gets the best out of his crispums in his highland home above Gairlochead; and Mr. H. T. Pitt, a great enthusiast, four of whose choicest plants appear together in the Royal Horticultural Society's list of awards, viz., Pittiae, Pittianum and Persimmon (the last one of Messrs. McBean's many fine crispums) all of which gained the R.H.S. First Class Certificate; and O. c. Prebendary Bevan. Probably in the early nineties more money was expended on O. crispum Pittianum than on any other Odontoglossum.

The principal nurserymen who secured rare varieties in large importations were Messrs. Low & Co., Messrs. J. Veitch and Sons, Messrs. Sanders, Messrs. Charlesworth and Co., and Messrs. J. and A. McBean, all of whom introduced some of the best types. Their marvellous culture of these Odontoglossums was largely responsible in establishing the fame of Messrs. J. and A. McBean, the present head of the firm, Mr. A. A. McBean, having had personal charge of the Odontoglossums from the first.

It is interesting to note some of the effects which have resulted from distinct type variation in imported crispums when they have been used by raisers. Outstanding among these are O. crispum xanthotes which appeared as an imported plant and which retained its peculiarities when home raised from seed and transmitted them to its hybrids, including O. ardentissimum, O. eximium, and O. promerens. The clear white of O. c. xanthotes, with an occasional straw-yellow spot irregularly displayed, is shown in all the hybrids of the xanthotes type and a charming section is thus established. The several imported varieties of O. c. Virginale when taken in hand by raisers produced magnificent white forms of large proportions and far exceeding in beauty the imported type. The blush-white form has also been improved in the same way.

There are still sections among the great variation in the normal type which need development, and their very distinct features might be transmitted in the same way as others mentioned. The most promising are O. crispum Oakfield Sunrise and O. c. Lady Jane, both imported varieties and with evidence of peloria, the yellow and other colouring of the lip being also seen on the petals. These peculiarities, if developed, would give a new section and add greatly to the interest of the class. In hybrid Odontoglossums the forms of O. crispum are the key and their beauty prevails throughout the greater part of the beautiful and complex family *J. O'B.*

TREES AND SHRUBS.

AZALEA HINOMANYO.

This delightful Azalea is alike beautiful in the rock garden or peat border, or as a decorative plant for pots; small plants in 48's, or even in two sizes smaller, are eminently suited to conservatory decoration and for use in the dwelling house.

The flowers, which are borne in great profusion, are of a colour rather difficult to describe. Soft clear pink is the dominant tone, but there is a very faint suffusion of lilac or mauve, so faint as to be almost illusory, but adding so much to the beauty of this remarkably fine plant.

This type of Azalea rarely succeeds in pots for successive seasons, so that after one season, the plants should be transferred to the open air.

Drifts of this species may be employed with excellent effect in a large rock garden, while a single plant will lend added interest and beauty to the rock-garden of small dimensions, the myriads of single blooms of exquisite colouring being quite distinct from those of other species.

As a pot plant, this Azalea readily submits to gentle forcing. *R. E. A.*

CLEMATIS INDIVISA.

This evergreen species of Clematis is a native of New Zealand, and is said to be, unfortunately, not quite hardy, except in the warmest parts of our Isles. It is quite happy, however, in a greenhouse that is kept sufficiently warm to exclude frost and intense cold, and it was under such conditions I saw, just lately, a good specimen approaching full bloom at Chicksands Priory, Bedfordshire.

Planted out, the specimen was trained up a pillar and along part of the roof, where it was seen to good advantage. Previous to being planted out Mr. Warner, the gardener, informed me that the plant had been tried as a pot subject, but it failed to flower except for an occasional truss. The flowers are borne in panicles; they are white and star shaped.

Unlike any other species of its family with which I am acquainted, Clematis indivisa is subject to scale on the leaves and stem. Where this Clematis can be grown out-of-doors, its flowering period is, as a rule, towards the end of April or beginning of May, but safeguarded under glass the flowers appear in February. *C. T., Ampthill.*

CAMELLIA RETICULATA.

This old species still holds its own among the choicest of the many hybrids of Camellia japonica, whose weak point is that they are rather stiff and formal in appearance.

The growth of C. reticulata is slender and wiry; the foliage, widely spaced along the growth, is distinct from that of other Camellias and gives the tree a light appearance which is easily recognised even when out of flower.

The flowers are large, from 6 inches to 9 inches in diameter, of glistening pink colour and deeper in tone at the centre, with a mass of conspicuous yellow anthers. They are freely produced at the tip of the growths which are bent downwards by their weight.

C. reticulata is reputed to be less hardy than its congeners. It is a fine subject for a cool house and may be grown either in a pot or planted out. It may be cultivated as a bush specimen or trained to cover a wall or roof, in which position it requires shade from the direct rays of the sun. *F. W. J.*

CORNUS NUTTALLII.

Although this North American Cornus was introduced nearly a century ago and possesses qualities which make it a desirable garden plant, its cultivation in this country has never become very widely spread.

The reason for this is, no doubt, due to its somewhat capricious nature, for it cannot adapt itself to all conditions and not infrequently perishes for no apparent reason.

Undoubtedly it flourishes best in a deep, rich loam, where moisture is abundant but not excessive, and in a position of semi-shade.

Where it succeeds its remarkable spring-flowering qualities, attractive fructification and the brilliant colouring of its foliage in the autumn, combine to make it a plant of outstanding decorative merit. *W. Auton.*

PSEUDOTSUGA DOUGLASII (KENT) VAR. CANDIDA.

The article and illustration in the *Gard. Chron.* of March 1st (p. 117, Fig. 47) was of great interest to me. In 1904 I purchased from Messrs. McOmish's nursery at Crieff, in Perthshire, a fine specimen of the pure, silver-leaved plant which originated in a seed bed of Douglas Firs in their nursery. This plant I transferred to my Pinetum near here—an article on which appeared in the *Gard. Chron.* in 1906 from the pen of Mr. A. D. Webster. The plant was remarkable from the fact that the growth of previous years did not change to the normal green of the species, but was silver throughout; unfortunately this, along with Pinus Montezumae (then ten feet high and which Mr. Webster could not believe would survive so long in the South-East of England), Tsuga Brunoniana, Abies Pindrow (twenty feet high), and a fifteen-foot high plant of the golden variety of Cedrus Deodora, all succumbed to the severe frost we had in 1916, when the thermometer fell to zero; Rhododendron Alice and R. Corona, suffered a similar fate.

Regarding the golden variety of the Douglas Fir, I cannot understand why Sir Herbert Maxwell finds it of a dull and dirty yellow. I have had some continental plants of this colour, but there is a tree in the policies of Mr. Maxton Graham's estate at Bilmerton (between Crieff and Perth), planted on the north side of a high, rocky, bank along the Perth Road, which is wonderful for colour—the brightest gold imaginable, and I have two small plants which are intensely golden. There is also a very large and very golden P. D. Stairii at Ochtertyre, Sir William Keith-Murray's estate is between Crieff and Comrie—what a wealth of Conifers abound there! How the late Dr. Maxwell Masters loved to go through this pinetum with Mr. George Croucher, a great gardener, and the greatest lover of trees I ever met, who, year after year, old as he was, made his pilgrimage to the grave, or rather the monument erected to David Douglas at Scone.

I also have a nearly Cambridge-blue seedling of the same Fir, which in colour far surpasses that of P. D. arizonica argentea; it appeared in a seed bed of the Colorado variety, but has the long needles of the true, old green-leaved Douglas Fir, which seems unobtainable now. *Neville Cooper, Vernon Holme, Canterbury.*

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MR. F. KINGDON WARD'S EIGHTH EXPEDITION IN ASIA.

I.—Eastward Ho!

LORD CAWDER and I, having made arrangements for a plant-hunting trip to the "Lands of the Thunderbolt," we sailed from London on February 2, bound for Calcutta. Port Said was reached on the 13th. It was very cold there, the winter having been exceptionally severe; and so it continued through the canal to Suez. This part of Africa is, of course, extremely dry. We were much interested in the attempts to brighten Port Said with trees. Avenues of stunted Goldmohur trees—now leafless—line, but do not shade, the roads. Other trees, such as Date Palms were being planted in specially prepared pits in the sand, filled up with soil, and all were copiously watered every day. Masses of Bougainvillea add a touch of colour to the more pretentious homes, and there are even gardens with various trees and shrubs (Albizzia, Oleander, and Agave to mention a few), but the cost of upkeep must be considerable.

Along the canal bank, here and there, are groves of dusty-looking Casuarina, but for the most part barren desert, broken here and there by an oasis, stretches to the horizon.

If Port Said is a desert, Aden is as lifeless as a lunar landscape. We visited the town, which is built at the bottom of the old crater and entered through a slot in the high cliff. It was fiercely hot inside the crater, but not hot enough to melt the lava. The cliffs form three-parts of a circle round the town, which is open only to the south-east, where the wall has been breached by the Indian Ocean, which beats lazily on a beach strewn with shells. Not a blade of green is visible in that immense cinder heap, nothing but clinkers, lava, and beds of ash, with here and there a twisted dyke, or a plug, marking like a monument, the site of a smaller crater. Stay! The tanks occupy a deep fissure in the 2,000-foot wall; and at their foot is a garden. Here a few hard-bitten Leguminous shrubs, chiefly Wattles, live a precarious existence. They are watered daily, so the soil is suitable.

The history of the tanks—a series of huge stone cisterns, built one above the other, is unknown. They were discovered some seventy-five years ago, buried under rubbish, re-excavated, and repaired. Popular rumour attributes them to the Queen of Sheba; clearly she was one of those tireless persons who have been everywhere and done everything. Be that as it may, the tanks are interesting, though they seem to belong to a period when Aden enjoyed a heavier rainfall than it does to-day. They hold millions of cubic feet of water; yet rain is so rare in Aden that even seven-year old children gape at the unique spectacle of a shower as though it heralded the crack of doom. We happened to arrive a few days after heavy rain; consequently there was a small puddle in the corner of the lowest tank.

Besides the tanks there are several deep, fresh water wells, forming part of the system, and these are never dry. One of them is shaded by a magnificent Ficus tree, so draped with roots probing thirstily for moisture that it looks as though it were covered with seaweed

Six days later we passed close to Minikoi, a small coral island full of Coconut Palms, with an atoll alongside and a lagoon filled with the most amazingly green water.

Colombo, our next halting place, was a pleasant contrast to the slag heap of Aden. We went out several miles along the coast and walked back through groves of Coconut Palms. Ipomoea Pes-caprae grows on the sand dunes, with here and there small Mangrove bushes or thickets of Screw Pine, and several small herbaceous Acanthaceae in flower. Here and there a freshwater creek showed a vista of assorted greens. Coconut Palms, however, like Date Palms, are monotonous. They have no individuality such as our English trees have. One would never grow tired of walking through a Beech wood, or an Oak forest; but half a mile of Coconut plantation would surfeit anybody. The roads in Colombo are well shaded with evergreen trees, amongst which Ficus religiosa is conspicuous; and a golden Cassia was in flower. At night, after a hot, sticky day, a storm came up against the wind. Billows of cloud piled themselves up, and jets of lightning appeared all over the sky—a truly equatorial sight.

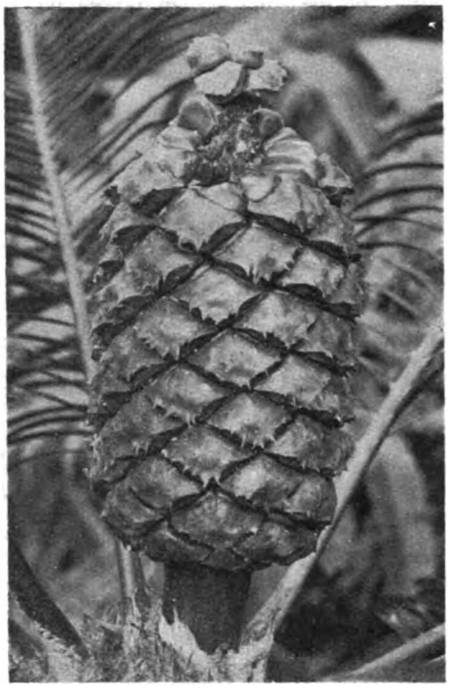

FIG. 88.—ENCEPHALARTOS VILLOSUS; FEMALE CONE.

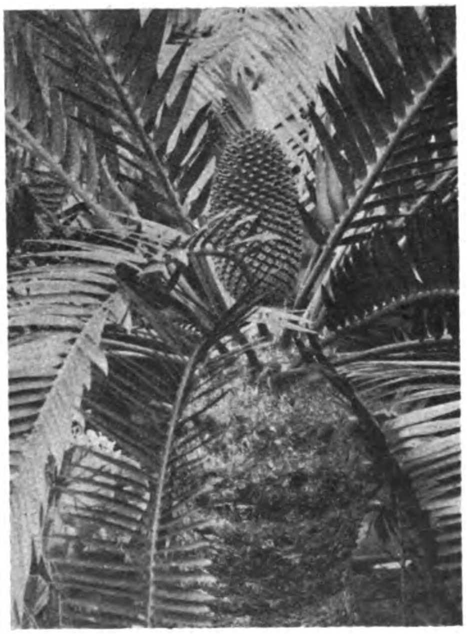

FIG. 89.—ENCEPHALARTOS CAFFER; MALE CONE.

On March 1 we reached Madras, and again went ashore for a walk. Sand dunes extend inland for half a mile, and here we noted Spinnifex taking hold and binding the sand like Couch-grass. Madras, though only 13° north of the Equator, enjoys a monsoon climate. Viewed from any direction, in the distance it looks green enough; but closer inspection reveals at this season, with the hot weather just beginning, a rather scraggy foliage on the trees. Butea frondosa was a fine sight everywhere, with bunches of blood-red, Pea-like flowers bursting from the pale, leafless twigs.

However, all voyages have an end, and on March 5 we reached the mouth of the Hoogly, and in the afternoon stepped ashore at Culcutta. The hot weather had just begun, before its time; and we were thankful to finish our business in three days. Many of the trees, though green, looked a bit faded, though a few were clothed in the shrill, green garb of spring; the grass on the huge *maidan* was beginning to burn. On the afternoon of the 9th, with the temperature standing at 100° F. in the shade, we boarded the train for Darjeeling. While daylight lasted, and all that night, we travelled fast across the great, level plains of Bengal, monotonous, colourless, cultivated to the last acre. Tamarind trees, weedy Palms, and clumps of Bamboo, chiefly shaded the drab villages; and everywhere dry Paddy fields. After nightfall, a fierce thunderstorm passed swiftly across and cooled the atmosphere.

We awoke on the morning of the 10th in the coolness of sunrise. The scenery was exactly the same as that of the previous day; but through the haze we could dimly discern the foothills of the Himalayas, rising like sea cliffs above the endless levels of Bengal.

At Siliguri, reached soon after 6 a.m., we changed on to the Darjeeling railway. The line branches here for Darjeeling and Kalimpong. Caravans plying between Sikkim and Tibet halt at Kalimpong, and we should have to start from there also. But first it was necessary to visit Darjeeling in order to complete our arrangements for transport and servants.

It was getting hot down below when we left Siliguri for the 7,000 feet climb, which began immediately. I have but a hazy recollection of that six hours journey, being "sea-sick" most of the time. A kittenish engine, chasing the tail light of the brake van on the brink of a precipice, is apt to make the most hardened traveller giddy Certainly it was a wonderful journey, beginning in jungle and ending in Conifer forest. The trees down below were for the most part in leaf, but already they had begun to shed their garments in preparation for the hot weather. The leafless Butea frondosa was a gorgeous sight, and afforded the only colour. Towards the summit, the most conspicuous trees were Alder, Cryptomeria in solid plantations; a large Buddleia with erect, bottle-brush spikes of white flowers; Rhododendron arboreum (just coming into flower); several Oaks, whose polished leaves shone in the brilliant light; and Magnolias. In wayside gardens one noticed masses of pink Peach blossom and a few Roses.

We reached Darjeeling at 1.30 p.m. on March 10, thus concluding the second stage of our journey. A deputation, sent by H.E. The Governor of Bengal, met us, and we learnt that all arrangements for our transport and servants had been completed, thanks to the kindness of General Bruce; thus our worst difficulties were already overcome.

We lost no time in visiting Mr. G. H. Cave, who took us round the lovely Lloyd Botanic Garden, which is under his charge. Despite the early season, there were several striking trees and shrubs in flower. Magnolia Camlbellii, though past its prime, was a glorious sight. The leafless trees, crowded with blossom in all shades of pink and rose and purple as the sunshine caught them, illuminated the steep slope. The milk white form is scarcely less beautiful. Another fine tree in flower was Michelia excelsa, even larger than the last, though the white flowers are smaller; they float, as it were, like froth amongst a sea of dark green foliage. We noticed also a bushy Pieris, every twig of which was beaded with large white urns, and a species of Edgworthia with close-set heads of waxy, orange flowers fading to white as they age. This last is a small tree. From the stringy bark, the Nepalis manufacture a good, tough, unsized paper, which I am using for drying and packing plants.

The Botanic Garden, though small, is beautifully laid out, and contains many fine examples of Himalayan trees, besides those mentioned — Oaks, Conifers, Rhododendrons (of which more anon), and even a Palm, which is found as high as 8,000 feet. The paths, zig-zagging to and fro along the steep side of the mountain, make the garden appear larger than it really is. Unfortunately it is impossible to grow alpines here. However, it was like meeting an old friend to see a dark-flowered form of Primula malacoides on every wall in Darjeeling. It enjoys more shelter and shade on these steep pitches than it usually gets in the Rice fields of Yunnan, and consequently thrives better. Introduced from seed a dozen years ago, it is now practically naturalised, and is to be seen in most gardens, being much used also for cut flowers. In the winter it is a godsend to such an otherwise flowerless place.

English garden flowers, however, are seen here, and Irises, Daffodils, Lupins, and Roses were just beginning to bloom. Clouds of pink Peach blossom, with here and there a snowdrift of Apple blossom glorify the *Rhud*, amidst thickets of Bamboo and Oak and Rhododendron. Of the last only R. arboreum, its crimson flowers much speckled, is yet in flower, though by no means well away. The white-flowered variety is very rare. The handsome R. Falconeri, conspicuous in any company and planted everywhere, shows no symptons of flowering yet, but a truss or two may be seen on the gnarled trees of R. grande sometimes.

The Deodar, so conspicuous at Simla, right at the other end of the Himalaya, is entirely absent here. Its place is taken by the rather sombre, conventionally-shaped Cryptomeria japonica.

On our first morning here we awoke to see from our bedroom window the second highest mountain in the world—Kinchenjunga—supported by a bodyguard of lesser giants, Kabru, Kamet, and others whose names are familiar to the world since the Everest Expedition made history. A more impressive sight can scarcely be imagined. The whole hundred mile arc of snow mountains was floating on the forested, tumbled ocean of Sikkim. How Yunnan faded into insignificance before that enthralling picture! For the first time I began to realise the distinction between a snow mountain and a mere snow peak.

We are busily engaged in arranging the final details of transport and servants—the two most important items. Luckily for us General Bruce and his assistants of the Mount Everest Expedition are giving us every assistance in this problem. They have procured the services of three eager Tibetans as permanent staff, twenty mules and two ponies; and our programme for the next month at any rate is now clear. On the 14th we leave Darjeeling and go down to rail-head at Kalimpong—a twenty-four mile march. Here we join our baggage and mules. A day at Kalimpong to repack a few things for the road and to initiate our men into the mysteries of camp beds and our personal idiocyncrasies; and on the 16th we start, "horse, foot and guns," for Gang-tok and the Chumbi valley. It is hard to believe that within ten days we shall be in Tibet, and that within three weeks we shall be on the other side of that immense snow range, and across the mightiest barrier in the world. *F. Kingdon Ward.*

NOTES FROM GLASNEVIN.

CYCADS.

The genera and species of the family Cycadaceae are fairly well represented at Glasnevin and many of the specimens are of considerable size. To gardeners and botanists several members of the order are well known, notably Cycas circinalis and C. revoluta, while in botanic gardens many others are represented.

In general appearance the Cycads resemble large Ferns though the cones are suggestive of Conifers; in the actual processes of fertilization and subsequent development they show more affinity with Ferns and botanists regard them as most nearly related to that family. The male and female cones are developed on separate plants and are often of large size. They are produced at or near the apex of the stem and surrounded by the last formed whorl of leaves. Sometimes more than one cone is produced, and two large female cones have been lately borne by a fine plant of Encephalartos Caffer in this garden (Fig. 90). These measured 18 inches in height, eight inches in diameter, and weighed 14 lbs. When removed, the scales had begun to open, displaying the bright red ovules. A male plant of the same species produced a cone at the same time (Fig. 89), but it was somewhat shorter and much less in diameter. Female cones have lately been removed also from Encephalartos villosus (Fig. 88) and Zamia Skinneri.

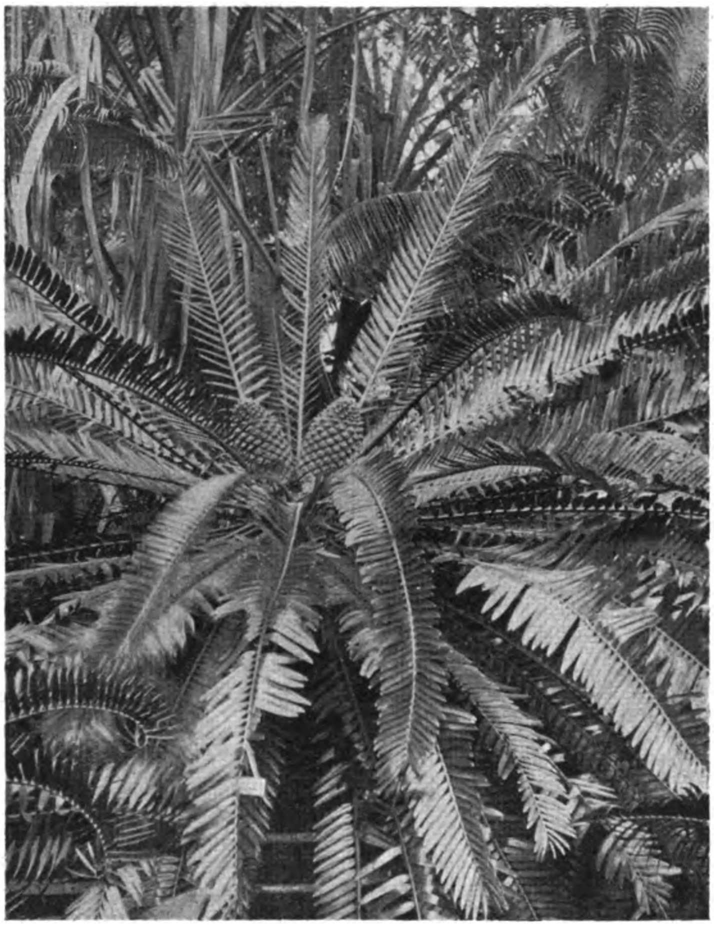

FIG. 90.—ENCEPHALARTOS CAFFER FEMALE CONES.

Here, at least, Stangeria paradoxa is the most prolific cone-bearing Cycad, one or other of the specimens rarely being without cones. Most Cycads develop a distinct stem or trunk but in Stangeria the stem is subterranean, a limited number of leaves being produced, and often the cones look as if they were growing in the soil.

In the genus Cycas the female cone consists of numerous small leaves bearing ovules on their margins.

The cultivation of Cycads presents no great difficulty as a rule. Pots or small tubs are suitable for small plants, repotting being done as necessary. In the case of big specimens large Oak or Teak-wood tubs are most satisfactory, but owing to the size and weight of old specimens re-tubbing is not an operation to be lightly undertaken, nor is it necessary, as, given adequate supplies of water, especially in summer, the plants will live and grow for many years. In these circumstances a lasting compost is necessary; this should consist of good sound loam with a dash of sharp sand to render it porous. For most Cycads the temperature of the stove or Palm house is necessary. I am aware that certain Japanese and Australian genera are sometimes grown in a lower temperature, but in my experience they do not then continue to flourish indefinitely.

A peculiar feature of many Cycads is the habit of forming clusters of nodule-like roots on the surface of the soil. These are said to be inhabited by bacteria and to function as aërating organs.

The number of genera cultivated at Glasnevin is eight, consisting of fifty-six species and varieties. Some of these are perhaps of doubtful identity as the determination of cultivated plants from descriptions drawn up from wild plants is by no means easy.

The most readable general account of the Cycads that I know is contained in Professor Chamberlain's book, *The Living Cycads*, a fascinating work costing only one-and-a-half dollar, plus postage, and published by the University of Chicago Press. *J. W. Besant.*

ANNUALS FOR GREENHOUSE AND CONSERVATORY DECORATION.

CLARKIAS.

There are now many beautiful double varieties of Clarkia which are very popular for pot cultivation, their slender, graceful habit and beautiful flowers making them eminently suitable for greenhouse and conservatory decoration. They are best raised about the middle of September, sowing the seeds thinly in pots or boxes according to requirements; thin sowing is very important as the seedlings are very liable to damp off if at all crowded. The seed boxes may be placed in cold frames or in a cool greenhouse, and when the seedlings are fit to handle they should be pricked off into pans or shallow seed boxes, or they may be placed directly into small pots. If large specimens are required three or four plants may be placed in a pot. They should remain during the winter in sixty-sized pots and be kept in cold frames, but it is, of course, an advantage if they can be wintered in a cool, airy greenhouse, placed well up to the roof glass.

Early in the new year they should be ready for a shift into their flowering pots, and splendid examples may be grown in six-inch pots. The compost for their final potting should consist of a good medium loam, with very little leaf-soil added, the more loamy compost producing firmer growth; a four-inch potful of fine bone meal may be added to every bushel of soil, and enough sand used to render the whole open and porous. The plants should be kept neatly staked and tied.

Growths of the double varieties should never be pinched as this seems to have the effect of making a proportion of them come single; moreover, pinching is really not necessary, as branching follows naturally.

Fine varieties are now obtainable in white, scarlet, salmon and pink and rose shades. Plants raised from seed sown during September should flower during May; seed may also be sown during January and February.

COBAEA SCANDENS.

This is a very strong growing, half-hardy annual, or at least it is generally regarded as such, although it is really a short lived perennial; it may, however, be treated as an annual. It is very useful for quickly covering rafters in large conservatories. The cultivation of this old garden plant presents no difficulty, and examples raised from seeds sown during February or March make rapid progress, and seedlings may either be grown in large pots or planted out according to requirements. In the extreme south of England and in the Isle of Wight Cobaea scandens seems to be quite hardy. The variety with variegated leaves is more attractive than the green-leaved type.

Large numbers of this plant are sold in the London district annually for planting out of doors in late spring for the embellishment of porches, verandas and trellises in summer.

COLLINSIA BICOLOR.

The lilac and white flowers of Collinsia bicolor are quaintly pretty for greenhouse decoration. Plants may be grown from fifteen to eighteen inches in height, and they are of neat, upright habit. The pure white variety, candidissima, which grows about one foot high is also very charming.

Seed is best sown in a cool house towards the end of January. When large enough to handle the seedlings should be pricked off into 48-sized pots in which they will flower. Allow five or six plants to a pot. Beyond careful watering when newly pricked off, and timely support with neat stakes, the successful cultivation of Collinsias presents no difficulty. *J. Coutts.*

FLOWER PICTURES AT THE ROYAL INSTITUTE.

The private view of the 114th exhibition of pictures arranged by the Royal Institute of Painters in Water Colours was crowded on the 20th March, the opening day. The exhibition, which will remain open until May, contains over 500 pictures, besides a number of miniatures. Among nature drawings there are a number of still life groups including cut flowers of various kinds, and a few gardens. A group entitled "Fresh Flowers," by James Clark, portrays yellow Chrysanthemums in a brass pot, placed on a table before a girl vividly robed in bright green, who toys with one of the flowers; the effect is sunny and bright. "Homage," by Wm. Pitcher, figures a small cast of the well known Venus of Milo against a drapery of grey-blue brocade; grouped around the feet of the cast are a vase of brilliant red and purple Anemones, a pearl necklace, and other small objects. The effect is pleasing but a trifle confused. "Autumn," by Miss A. A. Nash, is a perfect little piece of colour grouping; a spray of red-gold autumn leaves in a Wedgwood blue jar, against a yellow background. In "Anemones," by Miss Winifred Walker, there is again a combination of red and purple varieties, their intense colour relieved and intensified by a blue and white china plate forming a background. "Tulips," by W. Rossiter, is a simple but attractive study of red striped and purple Tulips in a glass tumbler.

Mrs. M. Low's "Marigolds" form a splash of vivid colour, heightened by the blue jar in which they are arranged, against a yellow, draped background. The next picture, by Miss M. Lapthorn, is of a Magnolia tree in bloom, drawn against a night sky of a wonderfully intense, vivid blue. "The Marauder," by A. Wardle, is a truthful and lively study of an American grey sqirrel, climbing the stem of a Sunflower from which he has already broken one of the blossoms; the broken flower head, already fading, is excellently portrayed. "Flower Decoration" (Miss Oxley), and "Star of Andalucia" (W. Apperley), both show vases of mixed blooms. Miss T. S. Stannard has a lovely view of "The Terrace, Powis Castle, Welshpool," showing a short flight of steps with pillared balustrade, a group of Hollyhocks and other flowers in the foreground, and, at one side, a peep of a herbaceous border, beyond which is a tantalising glimpse of rolling, open country. "The Hangman's Cottage, Dorchester," (W. W. Collins), has no grisly suggestions about it; only one end of the cottage is shown, with an overhanging roof, thickly thatched, and a riot of cottage flowers in the garden beneath.

"Paeonies," by David Davis, shows two pale flesh blooms in a jade green vase, against a background of blue, which throws in relief the rather ghostly colour of the principal subjects. Miss Maitland's "Flowers in a Chinese Mug," figures Delphiniums and other hardy flowers which harmonise well with the blue china of the vessel. Arthur Wardle's "Blue Tit" is a dainty study, showing a light branch of Laburnum with two hanging racemes of flowers, and on the wood, between them, the bird which provides the title. "A Little Old Garden away from the World" (H. S. Stannard), shows another thatched cottage set within a thick hedge, the little garden a wealth of tall Hollyhocks and other hardy plants. A low bridge leads from the cottage through the gate in the hedge into a narrow lane, in which hens are feeding. "Rhododendrons and Heather," by A. Burrington, is a fine study of a piece of woodland in tones of mauve and purple. Two children are seen plucking the Rhododendron blooms. Miss F. Drummond's "A Garden" shows a part of a lawn, with a herbaceous border in front, and a stone wall and seat forming a background; a pleasing little picture. "Autumn at Wendover," by Yeend King, is a beautiful study of a brick cottage, over the tiled roof and round the tall chimney of which is a mass of brilliant scarlet creeper. Fallen leaves are drifting down the lane at the side of the cottage, making splashes of bright colour on the neutral ground. Mrs. Bulleid's study is well called "Blue and Gold"; the subjects are blue and yellow Delphiniums, forming an excellent contrast. "Sunny-hearted June," by Miss Eva Savory, respresents different shades of red and white Shirley Poppies, delicately arranged in a pewter jug. Mr. Lucien Davis has given the title of "Starwort" to his study of a flower border in which the most prominent subject is a clump of tall white Marguerites bending in untutored luxuriance over the grass of the lawn, while stately Hollyhocks form a fitting background to the little scene. Miss G. D. Hammond contributes a drawing of a girl, seated under a tree on the low stone wall of a garden, listening to the song of a robin. The tree is in full leaf, and almost shuts out the sun, but where it does penetrate, its summer brilliancy is wonderfully portrayed. The same artist contributes "Love in Idleness—Love in Action," which is a study of different coloured Pansies grouped in a neutral tinted jar; and Miss Mary Burgess has a couple of white Roses in a glass vase resting on a polished mahogany table.

DO EARTHWORMS LISTEN-IN?

The cold nights and dry winds of March keep the earthworms at home. Though they are not warm-blooded animals they revel in moist heat, and are most in evidence during warm, showery weather.

Given a few spring-like days and a gentle downpour, and we invariably find abundant traces of them on our paths, and evidence of their activity in lawn and mead. White, of Selborne, wrote on May 20th, 1777, "Worms work most in the spring, but by no means lie torpid in the dead months; are out every mild night in winter, as any person may be convinced that will take the pains to examine his grass-plots with a candle."

It must be remarked, however, that, as we have many kinds of earthworms, so we must expect them to vary largely in their life habits. Statements which may be perfectly true of one species will not apply to all, any more than they will to birds or fishes. There are only a limited number of which it can be said, with Darwin, that they can crawl backwards as well as forwards, or that by the aid of their affixed tails they can retreat with extraordinary rapidity into their burrows. The graceful little purple worm is, perhaps, the best illustration of the former statement, though there is an amphibious worm found abundantly in this country, which was named Amphisbaena by the older naturalists because it could proceed with equal facility in either direction. It is the worms with flattened or spathulate tails that are clever at disappearing from sight when they are disturbed. Round-tailed species do not, as a rule, live in tunnels from which they emerge to feed, or into which they retreat like Tommies to their dug-outs.

There is every reason to believe that our earthworms originated in the water, and were at one time purely acquatic. Nearly all the different kinds still seek moist places when they wish to lay their eggs, and this instinct is peculiarly suggestive. We find, however, at the present time, that the species of animals which form this group are capable of being arranged under four headings. In the first section are to be placed those worms which still retain the acquatic habit. Next to these are the amphibious forms, which, while preferring the water, can nevertheless live in other localities if there is sufficient moisture. The third section includes the terrestrial forms, as distinguished from the fourth which may be termed subterranean.

It is important to keep this distinction in mind if we are rightly to interpret some of the curious movements of these night-loving invertebrates. Attention is now specially drawn thereto because a correspondent has been so kind as to send me a cutting from a newspaper, headed—"Do Earthworms Listen-in?"

It appears that a Mr. Leckie has been informing the readers of the *Occult Review* that not only are worms endowed with senses corresponding to all those of human beings, but they appear in addition to have a sixth sense—the capacity to receive and transmit electrical vibrations!

When a man asserts that creatures which can neither see nor hear possess all the human faculties, one sits up and rubs his eyes. And this action makes him cautious when a sixth sense is added where at best three only were previously suspected. Let us examine the grounds for the assertion made by Mr. Leckie.

"The worm (he states) is nocturnal in habit, and it is well-known that night is the best time for receiving and transmitting. It projects the upper half of its body outside its burrow, while the lower half remains embedded in the soil. The protruding portion is raised erect in the air, and is sometimes waved in different directions. Is the earthworm sending messages to distant friends or receiving communications from them?"

Suppose for a moment we transfer our thoughts to that beautiful little water-worm known as the Tubifex. It plunges its head into the ooze at the bottom of the water, and waves its tail frantically in the air. Is it sending messages to its friends? To its shame be it said it is gloating on the putrid matter in which its forepart is embedded, and waves its tail vigorously in order that it may be able to feast the more gluttonously.

Mr. Leckie draws on his fancy, but that is not exactly what a great scientist meant by the scientific use of the imagination. Let us seek some more satisfactory solution of the problem why earthworms raise and wave their heads. I venture to suggest in the first place that this may be a survival from the times when the earthworms were possessed of vision. What naturalist has not seen the graceful serpent glide into the open, raise the forepart of its body, perhaps a foot or more in the air, and take a careful survey of its surroundings? It has eyes, and this is its method of using them when it needs to be assured of its safety. Worms come from ancestors which were endowed with vision. This is argued from the facts which are known to every student of zoology. Thus, we still have among our amphibious worms one species, named Helodrilus oculatus, which is possessed of eye spots. Among waterworms, such as the Naididae, such eye spots are repeatedly found; and without entering into the vexed question of the relation of marine worms to the terrestrial forms, we may refer to the fact that Polychaets also possess eyes.

But, if it be replied that this too is imagination—though it is also science—another explanation is forthcoming which is also scientific but does not call for the use of the imagination. A very large proportion of our earthworms mate underground. But there are two species in particular which indulge in courtship, like the honest creatures that they are, in the open air and above board. The large earthworm and the long worm are the most frequent denizens of our lawns. During the night they thrust the forepart of their bodies out of their burrows and sweep them round in search of companions. It is usual for them to keep close to the soil, and describe a circle or part of a circle with their heads while their tails act as pivots. If two of them, whether with heads uplifted or with their anterior parts sweeping the ground, come into contact they are soon able to decide whether or not they are suited for each others society.

Many years ago I discussed the question of hybridity among worms, and in the light of the foregoing explanation of their movements it will be seen that this is a most fascinating subject. I do not think worms can generate or receive electric waves. *Hilderic Friend.*

STERILITY IN LILIES.

The discussion following the article on "Sterility in Lilies," reprinted in *The Gardeners' Chronicle* of November 24, Vol. lxxiv., raises several questions pertinent to the behaviour of incompatibilities in fertilization and to their relation to the production of fruit and prompts me to make a few further explanations and suggestions.

First of all I never intended to convey the impression that for Lilies "many species seem to be self-sterile," but only that self-incompatible plants are to be found in many if not all, species of Lilies and that the vegetative propagation of such plants may give strains which fail to set fruit when grown in isolation. In L. tigrinum, L. Hansoni, and L. candidum, all plants grown at the New York Botanical Garden have been fully or decidedly self-incompatible. In certain other species of which only a few plants have been tested no self-compatible plants were found. In each of these cases a more representative collection may reveal individuals and strains that are highly self-compatible. The plants of some species have grown so poorly that no fruit to any pollination could be expected and the results were not regarded as of any significance. As a rule the species is a mixture of fully self-incompatible plants and highly self-compatible plants with frequently other plants of intermediate grades of partial self-compatibility. Thus the species L. auratum, L. speciosum, L. Henryi, etc., are not "self-sterile" as species.

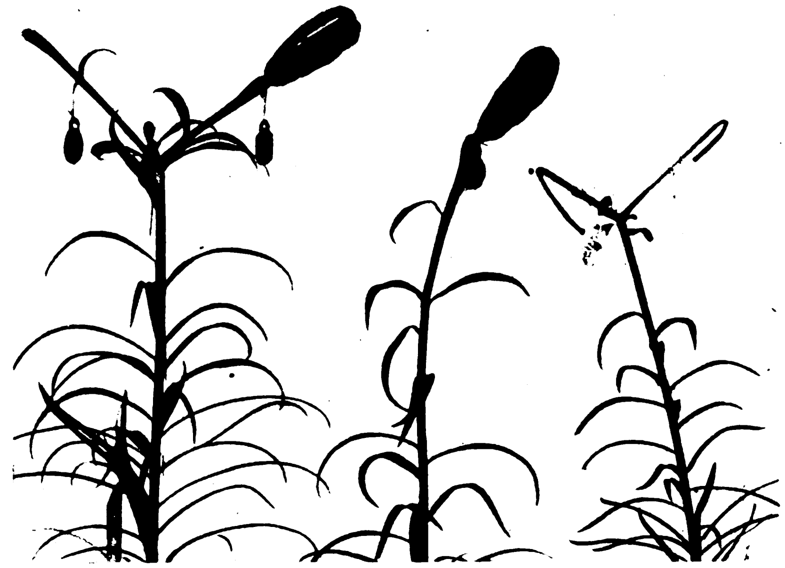

FIG. 91.—SEED CAPSULES OF LILIUM REGALE; AND SOME FAILURES.

For the special benefit of those who may have difficulty in breeding Lilies from seed it was said "to obtain seed one must either grow self-compatible plants or grow strains that are cross-compatible. When this is done, seed in abundance may readily be obtained except in the relatively few cases of impotence from intersexes or hybridity" provided (I may now add) that climatic or cultural conditions or an unhealthy condition of the plants does not prevent the maturity of fruit. It is to be recognised that observations on capsule production to open pollination do not necessarily give any data on the presence of self- and cross-incompatibilities. When there is a mixture of several clonal strains in the planting there will usually be sufficient cross-pollination accomplished, so that capsules will form rather abundantly on all plants.

Thus, for example, the rather recently introduced species L. regale is known to produce capsules and viable seed very freely; nearly everywhere the species can be grown successfully. This is the experience with plants of this species growing in the display beds in the New York Botanical Garden. But when ten of these plants were tested under control, that is by enclosing flowers, just previous to opening, in glassine paper bags and then making pollinations by hand, nine plants were found to be fully self-incompatible and only one was at all self-compatible. In these as in many similar tests, self-incompatible plants produced fine capsules to compatible crosses, an indication that the method of bagging and pollination does not inhibit the ability to mature fruit properly. Thus, when there is a mixture of several strains, each consisting of plants all descended by vegetative propagation from one plant, in a group of plants the only adequate tests for revealing the self- and cross-incompatibilities are those of controlled and guarded pollinations.

In the case where a group of plants has descended vegetatively from a single mother bulb, all are merely parts of the same plant. Unless there is bud variation or other variations in respect to the compatibilities all are either self-incompatible (and also incompatible among themselves) or self-compatible according to the particular inherent character of their mother bulb. This explains why the behaviour of a species is not necessarily revealed by the comparison of two different lots of plants grown in different localities, and especially if the species has long been propagated vegetatively in different nurseries or gardens so there has been the geographical separation or isolation of clonal strains. Just as individuals grown from seed differ, so may the clonal strains differ. To be most conclusive, comparisons of a species grown in England with plants of the same species grown in America should be based on the behaviour of plants of the same clones, and the tests should be by controlled pollinations. It would be desirable to make such comparisons, and the writer will be glad to co-operate fully in such tests. *A. B. Stout, Director of the Laboratories, New York Botanical Garden.*

(*To be concluded.*)

NOTICES OF BOOKS.

Flowers, Fruits and Vegetables.*

Under the comprehensive title of *Fleurs, Fruits, Legumes*, M. O. F. Wuyts, Professor of Horticulture, Ghent, has written a book of octavo size containing two hundred and fifty-four pages of text and diagrams. Although written chiefly for Belgian and French amateur gardeners, there are certain passages where the author almost forgets the class of gardener for whom he is catering. Nevertheless, the advice given in concise form is excellent so far as it goes. We fully recognise that Professor Wuyts has attempted the impossible in so much as a work dealing with flowers, fruits and vegetables, might run into several large-sized volumes without exhausting either subject. Information concerning most of the subjects included in the book is brief, and with the exception of the introduction to the various chapters, is severely practical. Twenty-three pages are devoted to Roses, including lists of varieties for various purposes, and thirteen pages are devoted to Sweet Peas, but without any reference to varieties, while six genera of Orchids are dismissed in two-and-a-half pages. Chapters are devoted to such subjects as Camellias, Gladioli, Begonias, Carnations, Dahlias, Aquatics, Chrysanthemums, greenhouse plants, apartment plants, peat-loving plants, ornamental shrubs, spring-flowering bulbs and border plants.

The vegetable section covers pages 155–198, including four pages on market garden crops! Fruit culture occupies thirty pages and, apart from advice on planting, general treatment, pruning and diseases, deals only with Apricots, Cherries, Raspberries, Gooseberries Peaches, Pears, Apples, Plums and Grapes, and it is unfortunate that Professor Wuyts has not given even limited selections of varieties of each of these subjects.

The glossary at the end of the book is excellent, although the explanation of certain words and terms passes from the mere glossarial method into extended descriptions. The diagrams are good, particularly those illustrating the cultivation of Sweet Peas on the *methode Anglais.* A useful index is given, but a page of errata suggests somewhat hurried editing There are, however, so far as we have found, very few orthographical errors. Considering the immensity of his subjects and the limitations imposed by a book of the size indicated, Professor Wuyts is to be congratulated upon the large amount of useful information he has provided, information which, by the way, is in most instances as useful to a British amateur conversant with the French language as to his brother gardener in Belgium and France.

VEGETABLE GARDEN.

FLORENCE FENNEL.

Although Florence Fennel or Finocchio (Foeniculum dulce) is not often cultivated in this country it is well worth growing where a large variety of vegetables is required. It grows best in rich light soil which should be well worked. Seed may be sown at the beginning of April, and at intervals throughout the summer, in drills 15 inches apart, thinning the plants to about 9 inches in the rows.

The soil should be stirred frequently during the season of growth until the enlargements at the base of the stalks begin to swell, when the plants should be earthed up lightly. The edible portion consists of the swollen bases of the leaf-stalks, which become blanched and ready for use in about three weeks after earthing. The plant may be eaten raw or boiled like Celery, which it somewhat resembles in aroma and flavour. *W. Auton.*

HARDY FRUIT GARDEN.

PROSPECTS OF THE FRUIT CROPS.

The promise of the hardy fruit crops appears to be very good this year, and the season being somewhat later than usual is all in favour of the fruits setting freely. Taking one year with another I have noticed that when Pears and Plums set their fruits about the middle of April there is little damage by severe frosts at nights, the foliage being a great protection to the crop. When the fruit buds expand in March the pollen is often ruined by frost, and what is more, when a cold storm occurs late in the evening and the weather is clear, a few degrees of frost do far more damage than a dry frost of double the severity.

In spite of the cold weather of the past few weeks and the continuance of frost last month, Pear buds are swelling very fast and the trees have an abundance of flowers to develop. The large amount of sunshine recently has made the ground much warmer; although the frost is severe for the time of the year it has not penetrated very far into the ground. The following varieties are a little more forward than others: Beurré Diel, Beurré Fouqueray, Catillac, Duchess d'Angouèlme, Madame Treyve, Nouvelle Fulvie and Princess.

Plums are showing well for a good crop. Standard trees of such varieties as Victoria, Prince Engelbert, Belgian Purple, Frogmore Orleans and Denniston's Superb all have an abundance of flower buds. Trained Plum trees on walls all have plenty of flower buds, and Allgrove's Superb will be the first to open. Gage Plums, like many others this year, are fruiting on last years growth. Monarch is not so full of flower buds as some; this variety cropped very heavily last year and this would account for the few flower buds; with me this Plum is not a fast grower. Damsons and Langley Bullace are all showing well for good crops.

Dessert Cherries are quite up to the average in showing for fruit; if we are favoured with fine weather at the setting time the promise of plenty of Cherries should be good, provided the trees can be kept clear of insect pests, which develop very rapidly once they obtain a footing. Morello Cherries are showing very well for fruiting.

All Apple trees, including standard, bush, horizontal trained and cordon specimens are well furnished with fruit buds, and the promise is good. Many varieties of Apples, in spite of the cold weather, are swelling their buds fast. Such sorts as Warner's King, Hollandbury, Bismarck, Norfolk Beauty, Rev. Wilks, Braddick's Nonpareil, St. Edmund Pippin, Egremont Russet, and some trees of Cox's Orange Pippin, are well advanced. After the long spell of frosty nights I should not think insects will be so troublesome as last year. The weather has been favourable for the early spraying of the trees, and there have been no heavy rains to wash the specific off the branches, which so often happens. *E. Neal.*

CULTURAL MEMORANDA.

MANURING FRUIT TREES.

The time and method of applying stimulants to fruit trees are deserving of more careful consideration than is often bestowed upon them, for whilst good and continuous crops of fruit cannot be secured without applying stimulants, if they are wrongly applied injury follows. Before the market fruit grower expends his capital on a large scale, he seeks a suitable locality for fruit growing where the soil and sub-soil are of the right nature. The private gardener is more or less handicapped by various adverse circumstances, as very rarely does he take charge of a garden of his own making, and the fruit and vegetable garden is often situated in one of the worst positions for fruit growing.

There are hungry soils and rich soils, some are warm, others cold, all requiring different treatment in the application of stimulants. The latter may be applied to certain soils in any quantity and at any season, whilst others would be soured if treated in a like manner. The nature of the soil and the condition of the roots should always be considered, as the mere application of manure is not sufficient in itself to produce good fruit unless the roots are in good condition. The providing of stimulants to the roots should not be regarded as a panacea for all evils; if manure in some form or other is desirable, the question arises when should it be applied to produce the best results? Trees that are prone to produce fruit instead of growth depend, in a great measure, for their continuance in vigour on artificial feeding, and its mode of application is important because, if wrongly applied, the even balance between fruiting and growing may be again disturbed. Neglect of feeding would result in scabby and worthless fruit. Such trees when growing in a naturally light and poor soil may receive liberal supplies of both solid and liquid manure at all seasons of the year, whilst if growing in a heavy land the feeding should be limited to their period of growth. In the former case a course of treatment should be commenced when all the fruit has been gathered. If the soil is dry it should be soaked with clear water, to be followed in a few days by watering with liquid manure, and the application of manure water may be repeated in the course of a fortnight.

When the trees are dormant a liberal dressing of farmyard manure should be spread over the roots after these have been bared of the soil, which should be spread over the manure. If a stronger manure, such as fowl's dung is used, this should be mixed with soil before applying it. This will suffice until the fruits commence to swell, when the grower is often puzzled to know which to select of the many manures recommended, from the drainings of the manure heap to highly concentrated forms such as sulphate of ammonia. As a rule it is best to avoid highly-concentrated and quick-acting manures unless in the most experienced hands. A mulching of farmyard manure affords an excellent and safe stimulant during the growing season, also liquid manure made from the same material.

Two points should always be observed when applying liquid manure, these being to use it in a clear state and well diluted. Soot is also a very valuable manure.

Overfeeding is an evil to be carefully guarded against at all times; this is an error made by many growers in their anxiety to obtain large size, whereas overfeeding results in grossness and encourages disease and decay. Liquid manure should never be applied when the soil is dry; it should follow, in a day or two, an application of clear water.

Where the soil is of a retentive nature, it is wise to dispense with mulchings to a large extent, and depend more on liquid manure and stimulants which may be sprinkled on the surface and washed in, because in the case of heavy soils it is well to avoid the use of any material tending to clog the surface. Winter dressings of manure should be replaced by root producing materials, such as charred refuse and bone meal, neither would I mulch heavily in summer on such soils unless for the purpose of checking evaporation during a very dry season. When trees on heavy soils show signs of weakness and disease, a cautious use of stimulants is necessary, as their use only aggravates the evil, and they are best dispensed with altogether, with the exception of those of slow action, or until health has been restored to the tree by the substitution of fresh soil, drainage, etc., as may be required. When weakness is the result of exhaustion, mild, stimulating manures will prove very beneficial, but they should be applied with moderation at first, afterwards increasing their strength as the trees show signs of improvement. In the case of young trees of vigorous habit, great care is necessary in applying stimulants; such trees should be allowed to reach a fruitful state unaided by manures of any kind, and this they will do in time if not restricted too much. It must not be inferred that I prefer a stunted tree, which I look upon with equal disfavour, the one being as obstinate to start into healthy growth as the other. *F. Jordan.*

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* *Fleurs, Fruits, Legumes*, by O. F. Wuyts, 133, Chaussée de Bruxelles, Ledeberg-Gand, Belgium. Price 2s. 6d., post free.

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

Grafting (see p. 144).—Referring to the note on grafting by Mr. Thatcher on p. 144, my experience with orchard standards may be of interest. I have found it more satisfactory to cut back to six feet or eight feet from the crown and put on a large number of grafts. This means time and labour, but the result is a large bearing tree in about three years. The tree suffers less check, and in any case the middle of a large tree produces little or no useful fruit. Even better results followed from cutting back as above and grafting the second season on the young growths. The grafting is easier and the unions better. In either case all young growths are left for the first season after grafting. *H. A. S.*

British Carnation Show.—I took a long railway journey to see the Carnation Show at Westminster, on March 27, and did so for the purpose of inspecting the new seedlings staged before the Floral Committee. I do not claim to be on a par with the specialists in my judgment of Carnations, but pride myself that I am a better judge of good Carnations than the Floral Committee of the British Carnation Society. The new white variety, Tess, to which an Award of Merit was given, is a long way inferior to such whites as White Wonder, White Pearl, or Wivelsfield White; in fact, it seems to have every defect and has a ragged, small flower. Perhaps it was the splendidly grown plants that misled the Floral Committee! The fancy variety, Eldora, is undoubtedly good, but cannot be compared with Benora. However, my main complaint is that a wonderful Carnation like Chintz, of which many of us have grown plants for a year now, and have proved its excellent qualities, should be overlooked. I imagine it is because Chintz is something new in colouring, yet surely this is the very thing private gardeners want. Another good Carnation overlooked—and my opinion is shared with many other gardeners who were at the Show—was Salmon Beauty. Rarely have I seen a more pleasing colour in any flower, and surely the plants afforded sufficient proof of its freedom of flowering. *F. B., Leicester.*

Snowdrops.—*Formakin* (p. 160), may be interested to know that we always transplant Snowdrops when they are blooming, or just when the blossom is going off. Whilst dry bulbs have always been more or less disappointing, the Snowdrops moved when in flower have never failed. As to increase, the common "wild" Snowdrops always set seed here, and I have little doubt but that they spread by that means. It has been said that the more green there is in the Snowdrop flower, the more freely will the plant naturalise; those with but little of that colour, or with yellow instead of green, being much more fastidious. I think *Formakin* is mistaken in suggesting that there were Snowdrops in Scotland (or anywhere else in Great Britain for that matter) in the 14th Century. From what evidence we have on this subject it seems that these plants were not known here until some three hundred years later, *i.e.*, the 17th Century. *A. T. Johnson.*

SOCIETIES.

ROYAL HORTICULTURAL.

April 8 and 9. A very successful exhibition was held at Westminster in connection with the meeting of the above dates. The tables were arranged across the hall and all the available space was utilised. Orchids were freely shown and hardy flowers were present in large numbers, while Tulips and Narcissi were abundant and beautiful. Most of the Standing Committees had plenty of work to do as will be judged from the number of medal awards and the plants to which awards were granted. Two groups merited the high award of a Gold Medal, i.e. those of Messrs. R. H. Bath and Messrs Sanders. In the afternoon Mr. M. C. Allwood delivered an interesting lecture on "Carnations and their Hybrids," before the Fellows.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the Chair), and Messrs. F. W. Flory, H. T. Pitt, H. H. Smith, Fred K. Sander, H. G. Alexander, J. E. Shill, J. Cypher, A. McBean, J. C. Cowan, T. Armstrong, E. R. Ashton, R. G. Thwaites, J. Wilson Potter, C. Cookson, Chas. H. Curtis, Stuart Low, and Gurney Wilson (Hon. Sec.)

The Chairman referred to Mr. Gurney Wilson's impending visit to the great Orchid show to be held in the United States, and it was agreed that Mr. Wilson should carry greetings and the good wishes of the Committee to the American Orchid Society

AWARDS OF MERIT.

Cymbidium Coningsbyana var. Mammoth.—A magnificent and large flowered form of a now well-known hybrid. The flowers are of the largest Cymbidium size; sepals faintly rose tinted on a cream ground; petals cream coloured; lip large, cream white with dots of red-brown. The rose colouring shows through to the backs of the sepals and is, indeed, of deeper hue on the back than on the front of the flower. The spike exhibited carried seventeen flowers. A cultural commendation was also awarded. Shown by Messrs. SANDERS.

Odontoglossum crispum var. Mary Gratrix.—A pure white variety of capital shape, the flowers being flat and finely proportioned. The lip has a golden-yellow base and crest and two or three brown spots on the yellow ground. Shown by Messrs. SANDERS.

Odontoglossum Duke of York (*percultum* × *illustrissimum*).—A very distinct hybrid in which the mauve-purple colouring occupies the greater part of the flower; the apices of the segments are white, and there is a small white area at the bases of the sepals and petals, behind the column. The shapely lip is purple, encircled by white, and with deep golden crest. Shown by R. GERRISH, Esq. (gr. Mr. Sorrell), Milford Manor, Salisbury.

Laelio-Cattleya Orange Blossom var. June (*L.-C. Elinor* × *L.-C. Trimyra*).—This delightful Orchid carried three spikes, and each spike carried three beautiful flowers of a clear orange-tinted yellow colour. One or two flowers showed a somewhat deeper orange staining on the apex of the frilled lip. The petals are also slightly waved along the margin. Shown by Lt.-Col. Sir GEORGE HOLFORD (gr. Mr. H. Alexander), Westonbirt, Tetbury.

Orchid papilionaceae ?—A small terrestrial Orchid growing about six inches high and bearing from three to six flowers on the erect spike. The lip, about half an inch across, is white, freely striped and dotted with deep mauve: the sepals and petals are rose coloured, with lines of green. This name is more or less provisional as the species has not yet been determined. The plants were collected in Syracuse. Shown by Major ALBERT PAM, Wormley Bury, Broxbourne.

Wilsonara Wendy var. Cardinale (*Odontoglossum Lambeauianum* × *Oncidioda Cooksoniœ*).—A handsome form of this fine trigeneric hybrid. The flowers are of good size, about three inches across and of a rich, glowing, cardinal red colour. Shown by Messrs. CHARLESWORTH AND CO.

GROUPS.

Messrs. SANDERS contributed a superb exhibit, in which Cymbidiums were the leading feature. Of these Orchids there were grand examples of C. Ceres, C. Coningsbyanum, C. C. var. Mammoth, C. Pauwelsii, C. Sanderi The Model, C. Pauwelsii var. Bruges Belle, with yellowish flowers, and C. Gottianum. The Odontiodas included O. Bright Eyes, O. Coronation. O. Diana, and O. Bradshawiae. Very interesting were the examples of Cymbidium Devonianum, Oncidium cucullatum, O. pubes, Dendrobium atroviolaceum, Masdevallia Houtteana and Restrepia striata. The display was a most effective one and the Cymbidiums were splendidly grown (Gold Medal).

Sir JEREMIAH COLMAN, Bart. (gr. Mr. J. Collier), showed a small group of splendidly grown Orchids. The choice varieties of Lycaste Skinneri—delicatissima, Knaresborough, Mrs. Hamilton Smith, Pink Pearl and alba magnifica—were charming, while the finely-flowered examples of Laelio-Catt'eya E'dorado, L.-C. J. F. Birbeck, Brasso-Cattleya Mildred, B.-C. speciosa, and B.-C. Gatton Lily were much admired and deservedly so. Other interesting plants in this choice group were Masdevallia Pourbaixii, with eleven flowers; the quaint M. Gargantua, Cirrhopetalum robustum and Sarcochilus Fitzgeraldii (Silver-Gilt Banksian Medal).

H. T. PITT, Esq. (gr. Mr. F. W. Thurgood), Rosslyn, Stamford Hill, showed a pleasing group, in which there was a great variety of subjects, ranging from the large flowered Brasso-Laelio-Cattleya Roumania to the minute-flowered Stelis tristylis. Odontioda Dulcis, pale rose and cardinal red, was a conspicuous plant in this collection; numerous good Cymbidiums and Odontoglossums were included, in addition to Cirrhopetalum picturatum, Epidendrum Endresii, Restrepia striata, Chondrorhyncha Chestertonii, Maxillaria Sanderiana, and Cypripedium glaucophyllum (Silver-Gilt Banksian Medal).

Messrs. CHARLESWORTH AND CO.'s exhibit was composed chiefly of Odontoglossums and Odontiodas and all the plants in it represented a very high degree of cultural skill. Conspicuous in the centre of the group was the plant of Wilsonara Wendy var. Cardinale, a fine bit of rich colouring. A few of the finest Odontoglossums were O. crispum xanthotes, O. Ardentissimum, O. Matador, O. Doris, and O. Ossulstonii, whilst the most striking Odontiodas were O. Brewii, the dark O. Alva, O. Sultan, and O. Iris. Charlesworthara nobilis, Dendrobium atroviolaceum, Masdevallia Chimaera, Angraecum Sanderianum, and Pleurothallis Roezlii were also included and proved of great interest to Orchid lovers (Silver Banksian Medal).

A most interesting exhibit of Orchids was staged by Messrs. STUART LOW AND CO., whose display included some large specimen Cymbidiums, a selection of choice Odontoglossums and Odontiodas, including a fine O. Madeline. Many species were exhibited, including the rare Vanda gigantea with a spike of ten flowers; Maxillaria Sanderiana, with three flowers; Dendrobium atroviolaceum, Cirrhopetalum cornutum, a lovely form of Cattleya Schröderae, Angraceum sesquipedale with two of its long-spurred flowers, Maxillaria picta, and M. nigrescens (Silver Banksian Medal).

MAJOR PAM showed pans of terrestria Orchids from Syracuse, and deservedly gained a cultural commendation.

Narcissus and Tulip Committee.

Present: Mr. E. A. Bowles (in the Chair), Mrs. Brodie, Miss E. Wilmott, Sir A, D. Hall and Messrs. P. R. Barr, W. Poupart, G. W. Leak, H. V. Warrender, W. F. M.

Copeland, Geo. Churcher, J. W. Jones, George Monro, Herbert Smith, Charles H. Curtis, Jan de Graaff, C. C. Titchmarsh, F. Herbert Chapman, Reginald Cory, W. B. Cranfield and R. Ascroft (Secretary).

First Class Certificate.

Narcissus Fortune.—A magnificent incomparabilis variety of excellent form. The flowers measure about three and a half inches across, the bright yellow perianth segments which are of good texture, well proportioned, and overlapping. The cup is of fiery orange-red colour. This variety was raised by the late Mr. W. T. Ware about ten years ago and we understand that it flowers slightly earlier than King Alfred. In growth it is very free and robust, and judging from the market bunch of twelve flowers which was exhibited it is unsurpassed as a commercial flower, while for a show flower and for garden decoration it is of outstanding merit. Shown by Messrs. W. T. Ware, Ltd., Inglescombe Nurseries, nr. Bath.

Groups.

Messrs. R. H. Bath, Ltd., showed a very choice collection of Breeder, Darwin, and Cottage Tulips in bowls of fibre. The flowers were of outstanding quality and noteworthy varieties were Orion, fiery scarlet; Princess Elizabeth, rose pink; Bouton d'Or, yellow; La Candeur, almost white; Van Poortvleit, red; Panorama, brownish red; Clara Butt, pink, and Golden Bronze. The Dutch Iris Van Everdingen, white and yellow, and Chionodoxa Luciliae were also displayed in the group (Gold Medal).

Early-flowering Tulips in pots were shown by Messrs. R. and G. Cuthbert, and included Calypso, primrose-yellow Pelican, white; Rising Sun, yellow; and Flamingo, rose and white (Silver Banksian Medal).

From Messrs. Dobbie and Co. came a large collection of double early-flowering Tulips arranged in rectangular groups of one variety against a black velvet background on a slightly-raised wide table. Of outstanding merit were Mr. Van der Hoef, pure yellow; Lord Rosebery, pale pink; Turban Violet, rose violet with yellow base; Anna Rooze, deep pink; El Toreador, orange and red; Boule de Niege, a magnificent white variety; Tea Rose, brimstone yellow; and Lucretia, bright rose (Silver-Gilt Banksian Medal).

Messrs. Barr and Sons displayed a unique collection of Daffodils, including many fine unnamed seedlings. Among trumpet varieties were Sanda, deep yellow; Siegfried, a beautiful flower, and Adriana, whilst other choice varieties were John Evelyn, a large incomparabilis variety, with bright, fringed cup; Firetail, white with red cup; and Bernadino, orange cup, with white perianth (Silver-Gilt Banksian Medal).

The Maytham Gardens were represented by a very pretty group of Tulips in which were William Pitt, fiery red; Mons. Mottet, a multiflora variety with white flowers; Elegans alba, white with recurved petals margined red; Sirene, a Lily-flowered variety of satiny rose colour; Bacchus, dark Plum colour; and Panorama, brick-red were conspicuous (Bronze Banksian Medal).

Floral Committee.

Section A.—*Present:* Messrs. H. B. May (in the Chair), H. J. Jones, A. Turner, John Heal, W. Howe, M. C. Allwood, Donald Allan, J. B. Riding, W. B. Gingell, G. W. Leak, W. Stephens, D. B. Crane, Charles E. Pearson, H. R. Darlington, E. R. Jones, J. M. Bridgeford, and W. D. Cartwright (S c.).

Section B.—*Present:* Messrs. Gerald Loder (in the Chair), W. J. Bean, R. C. Notcutt, G. Yeld, F. G. Preston, A. Bedford, R. D. Trotter, C. Williams, E. H. Wilding, W. B. Cranfield, G. Reuthe, T. Hay, James Hudson, Reginald Cory, H. V. Warrender, E. A. Bowles and Clarence Elliott.

Awards of Merit.

Arcteria nana.—A dwarf Ericaceous shrub growing but a few inches in height and found wild in the regions of Spitzbergen. The leaves are set in whorls of three and the terminal bi-fid racemes bear from three to four white flowers. The sepals are greenish-yellow, changing to pink with age. It is highly fragrant. Shown by Mr. G. Reuthe, Keston, Kent.

Rhododendron prostigiatum.—A charming hybrid obtained by crossing R. prostratum with R. fastigiatum, and so named on the advice of the late Prof. J. Bayley Balfour. The flowers measure about one-and-a-half inch across and are of bluish purple and deeper in colour than R. fastigiatum. Shown by E. J. P. Major, Esq., Lamellen, St. Tudy, Cornwall.

Prostanthera rotundifolia.—This greenhouse evergreen plant is a native of Australia, and the labiate, violet-purple flowers are produced in great profusion in axilliary racemes. It is an excellent plant for the conservatory or cool greenhouse and may be grown in pots or trained to clothe the pillars of the house. Shown by The Director, Royal Gardens, Kew.

Carnation Eldora.—A fancy variety of great merit which was fully described in our issue of the 5th inst (p. 195), when it received an Award of Merit from the British Carnation Society. Shown by Messrs. Allwood Bros., Haywards Heath.

Violet Princess Mary.—A very fine, large, semi-double Violet the flowers of which measure one-and-a-half inch across. In colour it resembles the variety Princess of Wales and is very fragrant. The flowers are devoid of anthers and the green, foliose carpels lend additional attraction to the blooms. Shown by Mr. J. J. Kettle, Corfe Mullen.

Groups.

A very highly decorative group of magnificently grown Freesias was staged by Messrs. Sutton and Sons and never before have we seen this subject used with such good effect. Arranged against a black velvet background the flowers were grouped in tall glass vases and epergnes set at different levels and massed with trails of Asparagus Sprengeri. The varieties represented a wide range of colours, and among the yellow varieties were Buttercup, a large flower; Gold Coin, deep yellow; and Apogee, pale yellow; while of rose pink shades were Apple Blossom, Conquest, Amabilis, Dainty, a charming variety, and Le Phare. Purity is a very fine white variety, and other choice sorts were La France, lilac, and La Charmante, apricot red (Silver-Gilt Banksian Medal).

Forced Azaleas were shown in quantity by Messrs. L. R. Russell, Ltd., and of particular merit were the specimens of the Japanese A. Hinodigeri, covered with bright rose-pink flowers; A. mollis Van Tol, apricot red, and A. Daybreak, pale pink. Pot specimens of Clematis and Amaryllis seedlings were also included in the exhibit (Silver Banksian Medal).

Messrs. Wm. Cutbush and Son showed a miscellaneous group of forced shrubs and included Cytisus praecox and well flowered standards of C. scoparius pendulus and C. Dallimorei. Among the Azaleas were excellent specimens of A. indica Pink Pearl, pale pink; Julias Roehrs, brilliant cerise red, and Niobe, white. A small rock garden planted with many choice things was also staged by this firm at one end of the group (Silver Banksian Medal).

Messrs. Stuart Low and Co. had a pleasing group of Carnations of which White Pearl, Eileen Low, salmon pink; Sir Mackay Edgar, crimson, and Reginald Cory, bright rose cerise are a selection. The same firm also showed magnificently flowered specimens of Chorizema cordata, Acacia armata, and A. pendula (Bronze Banksian Medal).

Messrs. J. Carter and Co. had a bright collection of well grown Cinerarias in a wide range of colours and also exhibited large baskets of the early double Tulips, Toreador, orange-red; Schoonard, white; Tea Rose buff, and Murillo, pale rose (Silver Banksian Medal).

Mr. J. Douglas showed a very fine exhibit of show Auriculas of many types and forms (Silver Banksian Medal).

Messrs. Allwood Bros. had an effective arrangement of Carnations in many choice varieties, of which Laddie, Edward Allwood, Topsy, Wivelsfield Claret, Jessie Allwood, and Wivelsfield Apricot are a selection. The same firm also showed a small garden planted with perpetual border Carnations and Dianthus Allwoodii varieties (Silver-Gilt Banksian Medal)

Mr. C. Engelmann showed magnificent vases of Nigger, deep crimson; Peerless, cerise; Cream Saffron, a shapely flower; White Pearl, and Mrs. Hamilton Fellowes, violet (Silver Banksian Medal).

Polyantha Roses were shown in pots by Rev. J. H. Pemberton, the varieties including Ellen Poulsen, rose; Echo, rose pink and the White Echo (Bronze Banksian Medal).

Messrs. Jarman and Co. showed sprays of Zonal Pelargoniums, including St. Louis, scarlet; Maxim Kovalesky, orange red; Vesta, bright cerise and Geo. Reid, bright orange.

Mr. J. J. Kettle exhibited a fine collection of Violets, amongst which were Princess of Wales, White Czar, Mrs. Lloyd George, and the new semi-double variety Princess Mary, which gained an Award of Merit (Bronze Banksian Medal).

Mr. B. Pinney also showed Violets in variety, including Tina Whitaker, Improved Princess of Wales, and Marie Louise.

Messrs. R. Tucker and Sons had a comprehensive display of Alpines in pots, and particularly noteworthy were the fine specimens of Saxifraga Sundermanii, white, the dwarf Primula tyrolensis, lilac with white centre; P. marginata, violet-blue; and Anemone vernalis. The group was bordered with thumb pots containing well-flowered specimens of Androsace pyrenaica (Silver Banksian Medal).

Messrs. Waterer, Sons and Crisp, Ltd., displayed Tulipa Clusiana, Myosotis Ruth Fischer, Anemone Pulsatilla alba and Trillium californicum, with Primulas and other choice Alpines in variety (Bronze Banksian Medal).

A bright group of Alpines was also staged by Messrs. J. Cheal & Sons, Ltd., who showed Trillium sessile, Dodecatheon radicans, Saxifraga rocheliana and Primula marginata. The same firm also displayed pot plants of Mignon Dahlias (Bronze Banksian Medal).

Mr. T. H. Lowensky, Sunninghill, showed magnificent specimens of pot-grown Rhododendron bullatum, with mammoth white flowers, R. calostratum, a low growing shrub with rose-purple flowers and R. sulphureum, yellow (Bronze Banksian Medal).

Messrs. Maurice Prichard was responsible for a neat group and showed clumps of the white Primula Sieboldii alba, P. Wardii, violet-blue; Draba imbricata, Haberlea virginalis and Saxifragas in variety (Silver Banksian Medal).

Primroses and Polyanthuses in many shades of colour were staged by Mr. G. W. Miller, the centre of the group being occupied by forced specimens of Dielytra spectabilis and Rhododendron Pink Pearl (Bronze Banksian Medal).

Messrs. Maxwell and Beale brought a good collection of Alpines in pots, among which were Aubrietia Dr. Mules, Saxifraga Irvingii, Omphalodes verna, and Erica darleyense. Close by Messrs. Baker and Co. showed Aubrietias, Saxifragas, and Primulas in variety together with a large clump of the golden yellow Ranunculus montanus.

Mr. Clarence Elliott exhibited a fine collection in pans, and of particular merit was Saxifraga Griesbachii Wisley var., S. Striburyi, Primula Allionii, lilac; P. pubescens alba, and the highly fragrant Muscaria macrocarpa (Bronze Banksian Medal).

Large drifts of Primula Crispii, Viola gracilis major, Soldanella montana, and Skimmia purpurea were the features of the exhibit by Messrs. W. H. Rogers, Ltd. (Bronze Banksian Medal) and Mr. G. Reuthe brought a choice collection of hardy plants and Rhododendrons. Among the latter were R. Elsae, with a large truss of cream flowers; R.

Cornubia, scarlet; R. ciliatum, pink; and R. arboreum roseum were a few of the best (Silver Banksian Medal).

Rhododendron Pink Pearl, Azalea narcissiflora, pale yellow and A. Niberic, flesh pink were shown together with a collection of Alpines in pots, by Mr. G. G. Whitelegg, and a small group of Alpines was also staged by Messrs. Skelton and Kirby.

Messrs. Reamsbottom and Co. showed their famous strain of Anemone St. Brigid in a wide range of colours, and Messrs. A. Dickson & Sons, Ltd. showed a group of Poppy Anemones of the St. Brigid type, the flowers being single and semi-double.

Mr. F. G. Wood showed Primulas in variety, Viburnum Carlesii, Anemones and other choice Alpines (Bronze Banksian Medal), and Messrs. Barr & Sons displayed hardy bulbous flowers and Alpines in variety.

Mr. B. Ladhams showed baskets of double and single Primroses, Violas, and Iberis Little Gem, while Messrs. Carter Page & Co. planted a rock garden with drifts of Saxifrage L. G. Godseff, Primula Juliana, P. frondosa and Androsace carnea Laggeri; Violas in variety were also shown by this firm (Silver Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (Chairman), J. Cheal, W. Poupart, W. G. Giles, W. Bates, G. Reynolds, W. H. Divers, W. Lobjoit, F. G. Treseder, A. Bullock, F. Jordan, A. W. Metcalfe, E. Beckett, E. Laxton, G. F. Tinley, H. Markham, H. Prince, S. B. Dicks, E. Neal, E. Bunyard, A. N. Rawes, and T. Pateman.

The only exhibit was Messrs. George Bunyard and Co.'s usual collection of Apples representing some of the finest sorts available at this date. They were Wagoner, Clark's Seedling, Lane's Prince Albert, Sir John Thornycroft, Encore, Old Royal Russet, Edward VII, Newton Wonder, Calville Malingre, Rhode Island Greening, Belle de Pontoise, and Calville Rouge.

NEWCASTLE HORTICULTURAL MUTUAL IMPROVEMENT.

This Society held its monthly meeting on the 25th ult. at Collingwood Cafe, Mr. R. E. Richardson presiding. A resolution was passed requesting the secretary to get into touch with the Newcastle Flower Show Committee with a view to the Society securing representation on that committee. The dates for the Chrysanthemum Show were fixed for November 14 and 15, 1924.

There was a beautiful display of pot plants and cut flowers for competition. Mr. C. J. Dillon, gardener to Mr. Harrison Smith, Morieside, Fenham, won the monthly special prize with a pot of Narcissus containing thirty-eight first-class blooms. Mr. Dillon also showed a good seedling Auricula. Mr. Forsyth, of Luton, staged a special exhibit of Caledonia Cyclamen.

The Chairman of the Society, Mr. R. E. Richardson, gave a lantern lecture on "The Nature and Anatomy of a Plant." He traced the evolution of plants from the simplest to the most wonderful adaptions to secure the services of insects in cross fertilisation. Methods of seed dispersal by the agencies of wind, insects, birds, animals, etc., were also illustrated. Mr. Richardson was heartily thanked for his lecture

A special lecture on Orchids was given to the Society at the previous meeting by Mr. H. J. Chapman, formerly gardener to the late Mr. Norman Cookson, Oakwood, Wylam-on-Tyne. There was a very large attendance. Mr. Chapman referred to the fertilisation of Orchid flowers and showed sections of ovaries and seeds. This was followed by illustrations and descriptions of seed sowing and the development of seedlings in various stages up to their flowering period. The results of cross breeding were illustrated by fine lantern slides, and in many cases both parents and offspring were shown on the same slide. Bigeneric hybrids received due consideration, and the lecturer dealt with the various Odontoglossums, Calanthes, and Phaius for which the late Mr. Norman Cookson's Oakwood collection was famous. At the conclusion of the lecture many questions were asked and answered, and on the motion of the chairman, a very hearty vote of thanks was accorded Mr. Chapman for the able manner in which he had dealt with his subject.

BRITISH MYCOLOGICAL.

The March Meeting of the British Mycological Society was held at University College, London. Mr. J. Ramsbottom, President, in the Chair. The first paper was by Miss E. J. Welsford, F.L.S., who gave an account of her work on Clove diseases.

Three years ago an investigation was undertaken into the cause of the death and deterioration of certain Clove trees in Zanzibar. Two diseases have been found. The most serious of these is a root rot caused by a fungus which has not yet been identified. The fungus attacks the fibrous roots of the tree, gradually destroying them, and passes into the thick lateral roots and the collar. The lateral roots of the Clove lie near the surface and spread out for a considerable distance, so that the roots of neighbouring trees are in close contact and the fungus is able to pass from root to root, thus spreading, if unmolested, in ever increasing circles. It has been found that the disease may be kept under control (1), by cutting down the diseased tree and burning its stump and roots; (2), by isolating the infected area by means of a ditch three feet deep; (3), by dressing the ground outside the infected area with 1 lb. of lime to the square yard.

The other disease of the Clove is due to one of the Mycosphaerellaceae, which attacks the leaves and causes them to drop prematurely, thus producing the symptoms known as "die back." It weakens the tree but otherwise does no great harm. The fungus enters the leaf through the stomata; the leaf begins to dry up and either before or after it falls from the tree, pycnidia are produced.

Entry into the leaf is dependant on the presence of the epiphytid Alga, Cephaleuros mycoidea, which occurs on the Mango and other trees as well as the Clove. This species must be distinguished from C. parasitica found as a disease producing parasite by Ridley on Cloves in Singapore and by Petch on Tea in Ceylon. After the wet season it produces numerous sporangia and the spores are distributed by the wind. On the Clove leaf they germinate to form discs, which provide a foothold for the developing fungal spores.

Any serious spread of the disease may be checked by spraying the leaves with Bordeaux mixture or with a copper acetate solution which destroys the Alga before it forms sporangia.

Miss M. Brett M.Sc., followed with a paper on "Sclerotia formation in a species of Sterigmatocystis." The behaviour, under various cultural conditions, of a species of Sterigmatocystis, which normally produces large numbers of sclerotia and few conidia, was described. It was found that conidial development is encouraged at the expense of sclerotium formation by exposure to light, increased osmotic pressure, or acidity of the culture medium, growth at temperatures above 35° C., and by the presence in the culture medium of carbon or nitrogen in unsuitable forms. A reduced form of conidial fructification is commonly formed under certain favourable conditions, and the sclerotia remain immature or are totally inhibited. In no case was the production of asci observed within the sclerotia.

The President then exhibited specimens of Gyromitra esculenta, an early spring Discomycete which is closely allied to Helvella. The specimen was sent by Mr. E. E. Green from his garden at Camberley, where the fungus appears annually.

After lunch Dr. J. Peckło gave an account of the work of Kruis and Satava on the life history of yeasts and the alternation of generations. The late Dr. Karel Kruis was Professor of Fermentation-Chemistry in the Bohemian Technical University of Prague and Dr. Jan Satava is his successor. The papers giving the results of these workers are in Bohemian and have apparently not been noted in other countries. Working with "Springer" (a Viennese yeast) they isolated an ascus and made a culture from it. The form of the cells developed in this way were strikingly different from normal cells. The latter are elliptical and form colonies with radiating lobes which easily break up, and when cultivated on gypsum blocks form ascospores, whereas the new forms were round, only half the normal size and produce thick, compact, inseparable colonies. Moreover they could not be induced to form ascospores. Every effort made to transform the small form into the normal form was unsuccessful even after three years. Similar results were gained with three beer yeast cultures. The explanation of the phenomenon was discovered when investigating a wine yeast called Melnik. Here it is possible to follow the development of each ascospore. It was found that the spores in some cases copulated when germinating. Where there was copulation the cells of the colony formed were normal; where there was no copulation a dwarf form resulted. Further, in the colonies derived from unconjugated spores copulation took place between pairs of small cells and gave rise to the normal form.

According to the difference in behaviour the yeasts may be arranged in two groups. First, those species in which the ascospores rarely conjugate at germination and in which, therefore, only small-celled colonies are formed. Secondly, those species in which conjugation frequently occurs during germination with the consequent formation of normal cells. The dwarf cells represent a gametophyte, the normal cells the sporophyte. The dwarf form also shows certain differences, from the normal forms, in fermentative powers.

Mr. A. D. Cotton, F.L.S., followed with a paper entitled "Some Notes on the Ministry of Agriculture's Plant Disease Survey." He recalled the fact that the Survey was commenced during the war period with a view to ascertaining which were the diseases exacting a toll on our staple food crops and what was the extent of the loss, and it aimed at reducing these losses to a minimum. After the food crisis was over the scope of the Survey widened and diseases of all economic crops were included. It was important to ascertain for international reasons exactly what diseases existed in the country and to know their precise distribution. The Survey reports contained weather charts which, especially as time went on, will be valuable in showing the effect of weather and climate on the incidence of disease. An enormous amount of material had been accumulated during the time the Survey had been running, much of which was of great value to the pathologist. With regard to seasonal variations it was difficult to generalise, but the last report issued contained some striking cases of contrast owing to the difference in the seasons of 1920 and 1921. False Mildews (Peronospora spp.) were scarce in 1921, but true Mildews (Erysiphaceae) caused considerable damage. Numbers of selected diseases were then dealt with showing some of the valuable and interesting information which had been acquired as a result of the Survey. The *Reports* are obtainable from the Ministry of Agriculture.

The last paper "A preliminary account of the germination of Odontoglossum and other Orchid seed without fungal aid," by Mr. E. Clement, was communicated by the President. A resumé of this paper was published on p. 192.

ANSWERS TO CORRESPONDENTS.

MARKETING OF CUT FLOWERS, FRUITS AND VEGETABLES: *C. F.* Narcissi and Tulips are marketed in bunches of twelve blooms, the former being arranged in long bunches of four rows of flowers with three blooms to the row. Tulips are arranged in circular bunches with the heads of the flowers at one level. There is no standard set for the sizes of the bunches of foliage except for the better class subjects such as Asparagus foliage and Smilax. The bunches should be of regular size and the salesman will advise you if they are too small or too large. The average weight of a sieve of Apples is about 40 lbs.: the sieve has a diameter of 16 inches and a depth of 10½ inches with a capacity of four pecks or eight imperial gallons. The punnet varies in size and is used for marketing salads, Seakale, Mushrooms, Raspberries, early Strawberries, etc. A fan of Celery may contain from eight to twenty sticks, but more usually a dozen. Flats are baskets which hold from 2½, 3, and 3½ dozens of Cucumbers. The size of bags used for "greens" varies. Rhubarb is marketed in bundles which at the beginning of the season contains only three sticks. The sizes of the bundles increase as the season advances. Out-door Rhubarb is bunched on frames; the largest sticks are placed on the outside and the smaller ones in the centre. The bundle is then tied at each end with oziers or string. Covent Garden salesmen generally sell produce on a commission basis, and unless your supplies are large it would be more advisable for you to dispose of your produce to high-class shops in neighbouring towns. The prices quoted in our reports are gross, and commission, porterage and cartage fees, charges on use of packages, etc., must be deducted.

NAMES OF PLANTS: *S. M., Bromley.* A, B, and C, forms of Helleborus orientalis; D, Abutilon Thomsonii; E, Saxifraga sarmentosa; F, Vinca minor var. argentea; G, Boronia megastigma; H, Vinca minor; K, Lithospermum officinale.

NATIONAL HEALTH INSURANCE: *Brighton.* A nursery foreman with a salary of £260 a year does not come under the provisions of the National Health Insurance Act.

Communications Received.—F. T. P.—S. J. F.—C. F. C.—E. T.—A. S. H.—C. P.—E. B.—E. W.—F. A. T.—R. A.—K. H.—P. R. I.—T. E. W.—J. F.—A. C.

SCHEDULES RECEIVED.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL SOCIETY.—Exhibition to be held at Kelvin Hall, Overnewton, Glasgow, on Tuesday, Wednesday, Thursday and Friday, September 2, 3, 4 and 5.—Secretary, Mr. J. Carrick Kerr, 38, Bath Street, Glasgow.

STREATHAM AND DISTRICT ROSE AND SWEET PEA SOCIETY.—Fourteenth Exhibition to be held at the Congregational Hall, Streatham, on Friday, July 4th.—Hon Secretary, Mr. A. R. J. Gurr, 109, Sunnyhill Road, S. W. 16.

NORFOLK AND NORWICH HORTICULTURAL SOCIETY.—Spring Show to be held on Thursday, Friday and Saturday, April 24, 25 and 26; Rose Show on Thursday, July 3.—Secretary, Capt. A. Sandys-Winsch, 9, St. Peter's Street, Norwich.

GARDENING APPOINTMENTS.

Mr. E. E. Algate, for the past five years Gardener to the Rt. Hon. the EARL OF MOUNT EDGCUMBE, at Cotehele House, St. Dominic, Cornwall, as Gardener to the same gentleman at Mount Edgcumbe, Plymouth.

Mr. F. Ford, previously Gardener to H. A. MILES, Esq., Burcote House, near Abingdon, Oxon, as Gardener to C. F. JACKSON, Esq., Springfield House, Knowle, near Birmingham. (Thanks for 2s. for R.G.O.F. Box.—EDS.)

Mr. T. W. Birkinshaw, for the past three-and-a-half years Gardener and Steward to MICHAEL STEPHENS, Esq., Coverwood, Ewhurst, Surrey, and previously for nine years Gardener and Overseer for Lt.-Col. Sir CHARLES HAMILTON, Bt., at Hatley Park, Sandy, as Gardener to His Grace the DUKE OF MARLBOROUGH, K.G., Blenheim Palace, Woodstock, Oxon. (Thanks for 2s. 6d. for R.G.O.F. Box.—EDS.

MARKETS.

COVENT GARDEN, Tuesday, April 8, 1924.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.		s. d. s. d.
Adiantum cuneatum, per doz. ...	10 0-18 0	Erica gracilis, 48's per doz. ...	24 0-30 0
—elegans	10 0-12 0	—60's per doz. ...	12 0-15 0
Aralia Sieboldii ...	9 0-10 0	—persoluta, 48's, per doz. ...	30 0-42 0
Araucarias, per doz.	30 0-42 0	Genistas, 48's, per doz.	18 0-21 0
Asparagus plumosus	12 0-15 0	Marguerites, white, 48's, per doz: ...	18 0-21 0
—Sprengeri ...	12 0-18 0	Nephrolepis, in variety	12 0-18 0
Aspidistra, green	48 0-72 0	—32's	24 0-36 0
Asplenium, per doz.	12 0-18 0	Palms, Kentia ...	24 0-30 0
—32's	24 0-30 0	—60's	15 0-18 0
—nidus	12 0-15 0	—Cocos	24 0-36 0
Cacti, per tray, —12's, 15's ...	5 0- 7 0	Pteris, in variety	12 0-21 0
Cinerarias, 48's, per doz.... ...	18 0-24 0	—large 60's ...	5 0- 6 0
Crotons, per doz.	30 0-42 0	—small	4 0- 4 6
Cyrtomium ...	10 0-15 0	—72's, per tray of 15's	3 6- 4 0

REMARKS.—Roses are receiving more attention: supplies are more numerous and the blooms are of the finest quality so far offered this season: all grades are offered at reduced prices. These are the only flowers which have become more plentiful during the past week; supplies of all other subjects from all quarters have been reduced and prices generally are higher, whilst a still further advance in price may be expected during the next few days. Richardias (Arums) and Lilium longiflorum will remain firm in price owing to the increased demand for Palm Sunday and the following week for the Easter festivities. There is likely to be a very limited supply of white blooms during the next fortnight, therefore a further advance in prices is anticipated. Allum (Star of Bethlehem), White Stocks, Richardias (Arums), white Roses, white Carnations, and many other white flowers will be required for the great Festival in Wales this week-end. Carnations are a better trade and supplies have become suddenly short. It is difficult to give a correct quotation during the next few days. Improved weather conditions, will be greatly welcomed, and better supplies should be available soon.

Vegetables: Average Wholesale Prices.

	s.d. s. d.		s. d. s. d
Asparagus—		Parsley, bushel ...	— 16 0
Cavaillon ...	3 0- 3 6	Parsnips, cwt. ...	8 0-10 0
Paris Green ...	6 0- 7 0	Peas, forced	3 0- 3 6
Lauris	3 6- 5 6	Potatos, Dunbar, per ton ...	260 0-280 0
English, forced	4 6- 6 0	—King Edward,	200 0-220 0
Beans—		—others ...	180 0-210 0
Finest	2 6- 3 0	—Canary Island, case	12 0-16 0
Best	2 0- 2 3	—Algerian, lb. ...	0 3½- 0 4
Madeira, Basket	6 0-10 0	—Forced	0 6½- 0 8
Beets, cwt. ...	12 0-15 0	Radishes—	
Carrots, new, per doz. bun. ...	10 0-12 0	Round	1 6- 2 6
Carrots, cwt. ...	8 0-10 0	Long	1 0- 1 6
Cauliflower, crates, 24's	8 0-12 0	Rhubarb, per doz., forced ...	1 6- 2 3
Chicory	0 6- 0 8	—Outdoor, per doz. ..	6 0- 8 0
Cucumber, 3 doz., 3½ doz., 4 doz....	20 0-23 0	Savoys, doz. ...	5 0- 6 0
Endive, per doz.	3 0- 4 0	Scotch Kale, bushel ...	3 0- 4 0
Lettuce, doz. ...	1 3 2 3	Seakale, punnet	2 0- 3 0
Green Artichokes, doz.	2 0- 3 0	Spinach, bushel	10 0-12 0
Greens, bag ...	7 0- 9 0	Tomatos, Canary Island	10 0-18 0
Mushrooms, lb. ...	2 3- 3 0	—English and Guernsey	3 0- 3 6
Mint, doz.... ...	4 0- 8 0	Turnips, new, per doz. bun. ...	10 0-12 0
Onions, Valencian, cases ...	12 0-13 0	Turnips, cwt. ...	6 0- 9 0
—Dutch	10 6-11 6	Turnip Tops, bag	7 0- 9 0
—English, cwt. ...	13 0-15 0		

REMARKS.—Almost all sections report a quiet trade during the past week; possibly brighter weather will improve matters. Grapes, Pears and Plums from South Africa have sold fairly well. Apples have not moved freely and the quantities from North America are large. The first Australasian Apples for the season are now to hand. Some very fine English Bramley's Seedling Apples are on offer, but prices have an easier tendency, although still comparatively high. Forced Beans are a rather better trade. There is also a fairly good demand for forced Peas and New Potatos. Asparagus is selling moderately well but Seakale is scarce and much wanted. Cauliflowers are an improved trade and selling at higher prices. Natural Rhubarb is more plentiful and adversely affecting the demand for forced Rhubarb. Tomatos in good condition from the Canaries are reaching satisfactory prices, but generally the condition of the fruit is poor. Cucumbers are more plentiful but are selling well. English Tomatos are slow in developing, the cold nights retarding them. Mushrooms are not so abundant as recently and are quoted higher in price. Green vegetables remain scarce. The shortage of Parsley is causing extremely inflated prices for available supplies.

CATALOGUES RECEIVED.

G. H. RICHARDS, LTD., 234, Borough, S.E. 1.—XL ALL specialities (wholesale).

HUGH M. KERSHAW, LTD., Keighley.—Hard green Tennis Courts.

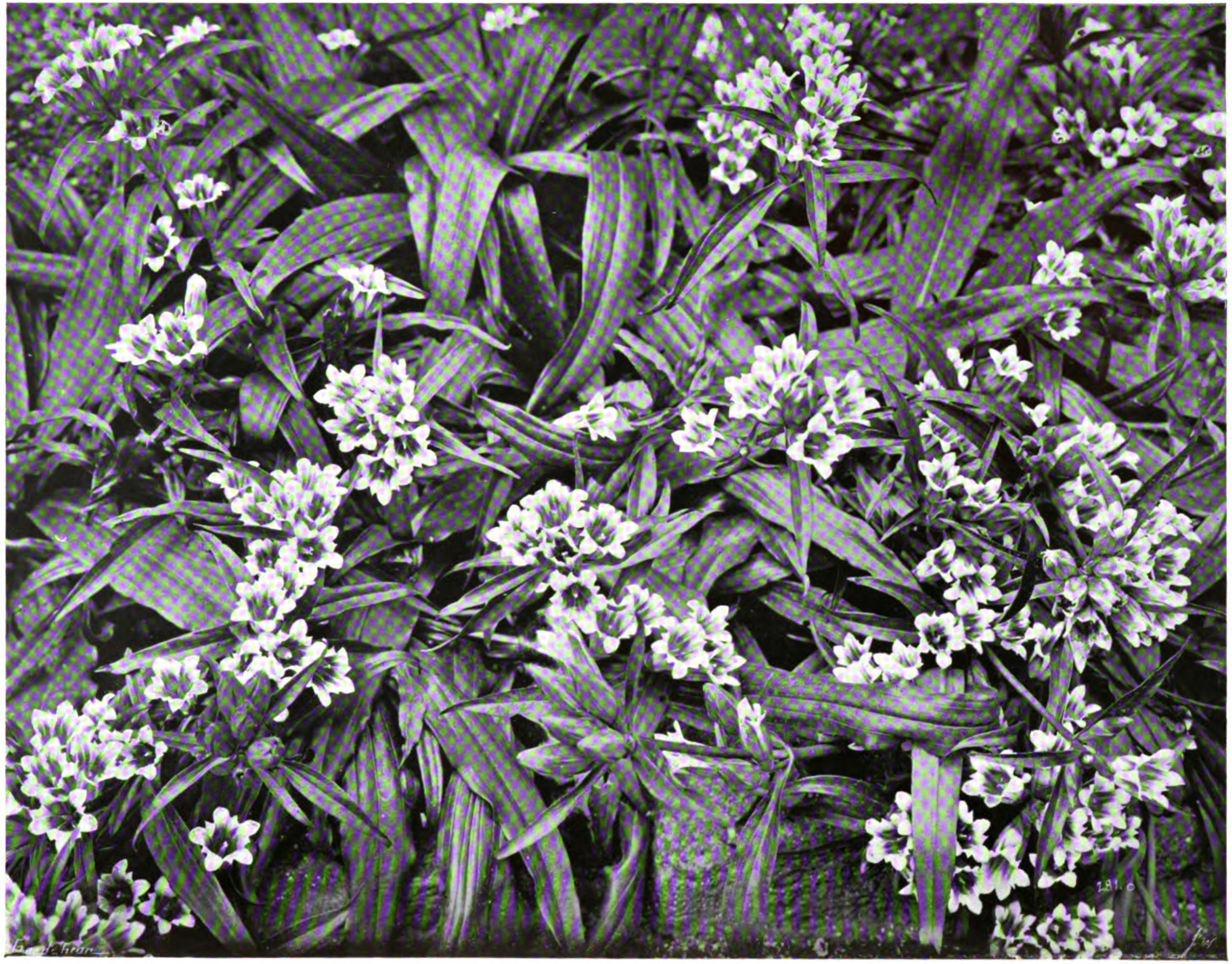
CHEALS'
DAHLIAS
Unique Collection.
Many Striking Novelties.
NEW CATALOGUE FREE.
J. CHEAL & SONS, Ltd.,
The Nurseries, CRAWLEY.

CRETS
The Pots that Drain
PETER BAILEY & SONS, Ltd.,
Heaton Mersey Pottery,
Nr. Manchester.

GREENHOUSE BLINDS AND HORTICULTURAL SHADINGS
made to any size and shape. Prompt dispatch and efficient service. Send for samples and list.
A. CRIPPS & SONS, Horticultural Sundriesmen
Pear Tree Road, Derby.

DOWNER'S USUALLY SILENT LUPINS
are making a great noise in the world.
"Reports" of wonderful Lupin effects
are heard from as far off as America,
New Zealand, S.Africa, etc.,and etcetera
Seed 60, 2/6 packet. Six large June-flowering plants, rich, harmonious colours, 9/-
DOWNER (Dept. 7),
Drayton Manor Nurseries, CHICHESTER.

Seed Potatoes
Direct from the actual grower. Carefully hand-picked Seed grown on the famous potato lands in South Lincolnshire from selected vigorous stocks, which were awarded in 192.-1923
THREE GOLD MEDALS
THREE SILVER CUPS
FIRST EARLY VARIETIES.
May Queen, Epicure, Early Rose, 28 lbs., 7/6; 56 lbs., 13/6; cwt., 26/-.
Sharpe's Express, Midlothian Early, Eclipse, Sir John Llewellyn, Dargill Early, 28 lbs., 6/6; 56 lbs., 11/6; cwt., 21/-.
SECOND EARLY VARIETIES.
Arran Comrade, Katie Glover, 28 lbs., 5/6; 56 lbs., 9/6; cwt., 17/-.
MAIN CROP VARIETIES.
King Edward, Field Marshal, Golden Wonder, K. of K., Crusader, Tinwald Perfection, Majestic, Rhoderick Dhu, Templar, White City, 28 lbs., 5/6; 56 lbs., 9/6; cwt., 17/-.
All Carriage Paid and Bags Free.
JOHN COCK, *Potato Specialist,*
Weston Hills, SPALDING.



GENTIANA DECUMBENS VAR. ALBA.

THE
Gardeners' Chronicle
No. 1947—*SATURDAY, APRIL* 19, 1924.

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SUPPLEMENTARY ILLUSTRATION.

Gentiana decumbens var. alba.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 48.7.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Tuesday, April 15, 10 a.m.: Bar 29.8°; temp. 45°. Weather unsettled.

Photo-synthesis.*

In this book Sir J. C. Bose undertakes, by the use of new methods, in the devising of which he is an acknowledged master, to throw light on the photosynthetic process whereby the green plant acts as the universal food provider of the world. As is but natural, this process, during which the plant manufactures so much food material that the overplus left after its requirements are satisfied suffices from the sustenance of the animal world, has been the subject of prolonged and profound study by plant physiologists. As a result of this study there is now much that is known as thoroughly established by experimental observation, although, as may be readily supposed, much remains still to be discovered. Anyone, therefore, who undertakes to add for the benefit of the general reader, or the scientific world, a new chapter to the study must, as writers of stories in periodicals do, preface his contribution by a summary, no matter how brief, of the earlier phases of the plot; otherwise there can be no coherence between his own instalment and those of previous contributions. This, however, Sir J. C. Bose has not done. True, he sets himself this task in the opening lines of the preface, but after referring to the pioneers, Priestley, Ingenhousz, Senebier and Saussure, whose work was done a century or more ago, he abandons all attempt to describe the historical development of our knowledge of the photosynthetic process. This omission in our opinion is a fatal defect. It is too late in the day for anyone to tell us that to stand before a coal fire is "to bask in the sunshine of the carboniferous period." What we want to know is to what extent the mind of man has discovered how the "carboniferous sunshine" gives us through the mediation of the green plant our bread and cheese and all material sustenance, and we naturally desire also to know by what essential steps knowledge of the process has been discovered, and what is the state of this knowledge at the present day. The earlier chapters of the book are devoted to a description of the apparatus used by the author for his experiments. He employs the well known method of estimating the rate of photosynthesis by determining the volume of gas given off by a submerged water plant and introduces useful refinements in the method. The conclusions which Sir J. C. Bose reaches with respect to effect of light intensity on degree of photosynthetic rate are, we believe, not in disaccord with those previously reached by Dr. F. F. Blackman and other workers; albeit that no reference appears to be made to this fact. He finds that, within limits, photosynthesis increases with increasing light intensity. The author proceeds next to investigate what may be called the physiological factor in photosynthesis. The existence of this factor has already been demonstrated very beautifully by Dr. Blackman and his pupils who have shown that a seedling plant may have its chlorophyl fully developed and yet be unable for some hours after it is exposed to light to photosynthasise at all. Very interesting, however, is the observation made by Sir J. C. Bose, that the merest trace of nitric acid, one part in two billions of water, produces a pronounced increase in photosynthesis and gardeners who use nitrate of soda to whip their plants along in spring will be pleased to know that by so doing they are enabling the plant to speedily and greatly increase its efficiency of food manufacture. The author also shows that extract of thyroid gland, iodine, and formaldehyde, if supplied in sufficiently small amounts, stimulates the green plant to enhanced activity, thereby adding interesting examples in illustration of the well-known fact that the addition of minute traces of almost any toxic substance serves like a spur to drive protoplasm faster. Thunderstorms also—or rather their aftermath—quicken photosynthesis, and according to Sir J. C. Bose, this speeding up, which may result in doubling the rate of the process, is to be attributed to the traces of "nitrous fumes" produced by electric discharge and washed down by rain. But there are large numbers of observations—many of great interest relating to the effect of electric discharge in accelerating plant processes, and the reader would have benefited if the author had referred to these observations and endeavoured to bring his into line with them. In his studies of the effect of increasing amounts of carbon-dioxide on the rate of photosynthesis Blackman found that with other factors, light, temperature, etc., remaining constant, increasing concentrations of carbon-dioxide lead to steady increases of photosynthesis up to a maximum and that thereafter further amounts of the gas produce no effect on the rate. Bose, on the other hand, claims to show that although carbon-dioxide in excess acts as a narcotic, yet, nevertheless, increasing amounts continue, apparently indefinitely, to lead to increased photosynthesis. For our part we are inclined to think that Blackman's conclusion is the more acceptable. The author working with the water plant, Hydrilla verticillata, finds that photosynthesis may go on in the complete absence of carbon-dioxide from the water in which it is living, and he concludes that the organic acids present in the plant take the place of the gas. No doubt they do indirectly. It would seem probable from what is known in the case of succulent plants that organic acids present in them readily give rise in the light, in the course of respiration, to carbon-dioxide, and therefore it is not surprising that with this internal supply the plant should still be able to photosynthasise. The effect of different coloured lights has been re-investigated by Sir J. C. Bose, who finds the relative efficiencies of blue, red, and white light are as 1 : 2.1 : 8; that is, for light of equal intensities, red is twice as potent as blue and white light four times as potent as red. Direct sunlight, as is well known, leads to very active photosynthesis, and the author, by ingenius methods, reaches the conclusion that direct sunlight is about five times more powerful in effecting photosynthesis than is diffuse light from the sky. The often asked question of the efficiency of the green plant regarded as a photosynthetic machine has been re-investigated by Sir J. C. Bose who finds that it amounts to 7.4%; *i.e.*, that a vigorous green plant utilises that percentage of the total radiant energy which falls upon it; a fact which if it be confirmed will very greatly increase our respect for the efficiency of vegetation as accumulators and utilizors of radiant energy. Although for the reasons already mentioned it is not possible for the student to read Sir J. C. Bose's book with unmingled feelings, yet when he sets the book down he cannot fail to entertain a strong sense of admiration for the exuberant fertility of the author's inventive faculty. If "science is measurement," then surely Professor Bose deserves well of his fellow investigators.

Holland (Lincs.) County Potato Show.—Arrangements have been made to hold the Holland (Lincs.) County Potato Show in Boston on Thursday, October 23rd. The preliminary schedule, which has recently been issued, contains details of the competitive classes, and sections are devoted to seed and ware Potatos, collections, single dishes, and trade exhibits. An interesting class is the one devoted to a new design or an improvement to any existing design of implement used in the cultivation of the Potato. The schedule may be obtained from Mr. J. C. Wallace, Agricultural Institute, Kirton, near Boston, Lincs.

The Garden at Clifford's Inn.—Like most of the open spaces in the metropolis the gardens at Clifford's Inn were put to military purposes during the war and their amenities spoiled by the erection of two army huts. An effort is now being made to get these huts removed. In reply to a correspondent the Minister of Pensions states that one hut is under his control and the other belongs to the Office of Works, and that he will go into the business and inspect the huts in a few days time. Thus there is likelihood that the gardens at Clifford's Inn will be restored to their original use in the near future.

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* *The Physiology of Photosynthesis.* By Sir Jagadis Chunder Bose, F.R.S., pp. 287, 16s. net. Longmans, Green and Co., London, 1924.

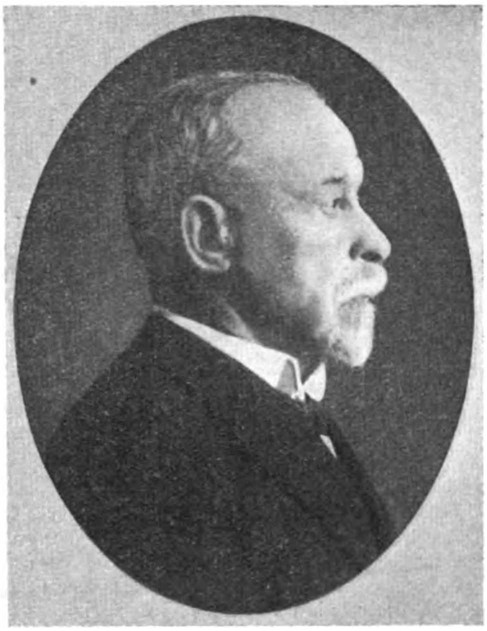
British Mycological Society's Spring Foray.—The spring foray of the British Mycological Society will be held at Matlock from Friday evening, May 16th, to Tuesday morning, May 20th. Excursions have been arranged to Dovedale, the Heights of Abraham, Alderwasley, and Shining Cliff, and the headquarters for the meetings will be at the Chatsworth Hydro, Matlock.

Midland Daffodil Society.—Mr. F. Herbert Chapman writes:—The annual show of the Midland Daffodil Society, which takes place at the Edgbaston Botanic Gardens, Birmingham, on Thursday and Friday, April 24 and 25, is an event of more than passing interest to all lovers of the Daffodil. The show was founded some thirty years ago by the late Mr. Robert Sydenham and the very cream of new varieties are exhibited at Birmingham. An award to a new Daffodil at the Midland show is regarded as equal in value to one made by the Royal Horticultural Society. The winning of the Bowen cup, the principal trophy, for new seedlings, is undoubtedly the blue ribband of the Daffodil world. If there be in England at the moment any colonial growers of the Daffodil, it is at Birmingham on the 24th and 25th that they will find the very latest English, Scotch and Irish raised flowers, and a visit to the show will be well worth the making. The Midland Society still has for its secretary, Mr. Herbert Smith, of 22, Tenby Street North, Birmingham, who will welcome all visitors and readily forward a schedule to anyone interested. In the Birmingham schedule the classes are arranged to suit both the large and the small cultivator and there is no show, be it where it may, where so much kindness and attention is shown to exhibitors when staging their flowers. Hotel accommodation at Birmingham is plentiful and varied but the majority of Daffodil enthusiasts are usually found to foregather at the Grand Hotel in Colemore Row.

National Auricula and Primula Society (Southern Section).—We much regret to learn from the annual report of the Committee that this old floral society has suffered much loss of members during the past few years, and we trust that the appeal to lovers of the beautiful florists' type of both Auriculas and Primulas to join the Society will meet with a good response. It would be a distinct loss to gardening if the varieties which older gardeners prized so highly were to be lost to cultivation, but there is a danger that this may happen, for exhibitors and growers of them seem to be fewer and fewer each year. There are, however, still a few enthusiasts who serve to keep the show in being, but this once popular Society has a membership of less than forty with an income of about £20. As the balance last year amounted to £11 odd and this year is only £1 5s. 6d., it will be a matter of increasing difficulty to carry on, unless the revenue from subscriptions is largely augmented. The Society's show this year is fixed for Tuesday and Wednesday, April 29 and 30, and, as in several years past, will be held in conjunction with the meeting of the Royal Horticultural Society on those dates. The Hon. Secretary and Treasurer is Mr. A. S. Hampton, 63, Tilehurst Road, Reading.

The late Mr. R. P. Brotherston's Library.—On Monday, April 28, Messrs. Sotheby, Wilkinson and Hodge will sell by public auction at their galleries, 34 and 35, New Bond Street, the horticultural and other books contained in the library of the late Mr. R. P. Brotherston, who, as our readers will remember, was for many years gardener at Tyninghame, Prestonkirk, and a regular contributor to these columns. A number of interesting works are included in the sale, notably Batty Langley's *Pomona*; Evelyn's *Sylva*; John Rea's *Flora*; and the *Herbals* of Gerarde, Lyte, Dodoens, and Thornton, besides works by Sowerby, Aiton, Maddocks, J. H. Veitch, Clusius, Philip Miller, Folkard, and Amherst.

Dr. Attilio Ragionieri.—Dr. Ragionieri was born at Sestofiorentino, near Florence, Italy, in 1856. He comes from a family of gardeners; his grandfather was head gardener at the Grand Duchy gardens of Petraia and Castello, from the year 1822 to 1858, and his father was Director-manager of the Marquis Corsi Salviati Gardens at Sestofiorentino. Dr. Ragionieri was little more than a boy when he began the work of plant breeding. At the international show held at Florence in 1874 a group of Tree Carnations of his own raising was exhibited from the Corsi Salviati garden, together with many other groups which gained Gold Medals. While Dr. Ragionieri was a student of medicine at Pisa, in 1876, his father became almost completely blind, so he took over the direction of the gardens but without giving up his medical studies. At that time the late Dr. Beccari, the great Palmologist, who honoured Dr. Ragionieri with his intimate friendship, made an expedition to Sumatra, from whence he sent to the Corsi Salviati Garden many seeds and plants, of which Dr. Ragionieri took charge. The tuber of the gigantic Amorphophallus Titanum, Becc., which flowered in the Royal Gardens, Kew, some years later, was raised from seed by Dr. Ragionieri, who also grew many other new and rare plants sent home by Dr. Beccari, notably Musa sumatrana, M. Troglodytarum, Pinanga malaiana, Veratronia malayana, Areca triandra bancana, some new fine-foliaged Begonias, and a new Macodes (Anaectochilus). The extensive collections of plants grown at Sesto gave Dr. Ragionieri the opportunity of making many experiments in cross-fertilisation. Besides an important collection of Tree Carnations, unique at that time, he raised in 1878 the first hybrid Freesia, between F. refracta alba and F. Leitchlini, named Giardino Corsi Salviati, and also some fine-foliaged stove plants—Dieffenbachia Memoria Corsii, many Crotons (Codiaeum), Dracaenas, Alocasias, Caladiums, Begonias, Hippeastrums and Bromeliaceous and Gesneraceous plants. In 1899 Dr. Ragionieri removed to Castello, near Florence, and while exercising his profession of physician he gave increasing attention to plant-breeding; coloured Lilies of the Valley, coloured Freesias raised by crossing his first hybrids with F. Armstrongii; coloured Richardias, produced from the cross Rehmannii × Elliotiana, Tree Carnations and other Dianthi, Tulips, Gladiolli, Amaryllidaceous plants, and giant Florentine Ranunculus were particularly the objects of his care. The last are wonderful flowers, as recorded in these pages on the occasion of the Ghent Shows in 1923. He was probably the first in Europe to raise hybrids of Rosa Banksiae. He worked also on economic plants, such as Wheat, fruit trees, Grape vines and vegetables. A race of Wheat named St. Martin, raised by him, is largely grown in Piedmont and other provinces where it yields large crops; some other races derived from crosses with Japanese varieties have proved to be three weeks earlier to ripen than the old races. In fruit trees he succeeded in raising crosses between Plums and Apricots, Plums and Peaches and Nectarines. Among Grape vines he has some crosses between the Tuscan Salamanna (Muscat of Alexandria) and the Terra Promessa Grape, which bear well-furnished bunches more than two feet long. Vegetables he has dealt with include Brassicas, Dolichos and culinary Peas, and he has crossed the common Shallot with some varieties of long-keeping Italian Onions, producing many useful varieties. During the war the difficulties of the times obliged him to abandon a great deal of his work; a collection of one hundred and fifty varieties of Tree Carnations, some hundred promising Wheats, and many other plants were lost. His native town honoured him recently with the title of "Cittadino benemerito" (well meriting citizen) for his agricultural and horticultural achievements, and also for his medical work carried on during forty-two years. The Agricultural Association of Sestofiorentino has also made him its honorary president.



DR. ATTILIO RAGIONIERI.

Trail Memorial Fund.—The labours of the Trail Memorial Committee, which was inaugurated to erect some tangible token in memory of the late Dr. James W. H. Trail, Professor of Botany in Aberdeen University, have been brought to a very successful close. Professor W. G. Craib, Dr. Trail's successor in the chair, presided over the final meeting, and Dr. Macgregor Skene, secretary and treasurer, submitted the financial statement, from which it appeared that the subscriptions amounted to £324 19s which, with interest, represents a sum of over £332 for the purpose of the memorial. The sum raised was considered highly satisfactory, and it was unanimously agreed, after payment for the Trail Memorial Plaque, erected in the Cruikshank Botanic Gardens, Aberdeen, and the publication of the Memorial Volume, to hand over the small surplus to the Aberdeen University Library Committee for the purchase of botanical publications.

Warning Against Spraying Fruit Trees when in Flower.—The Council of the Royal Horticultural Society desires to call the attention of fruit growers to the important part played in the production of our fruit crops by bees and other winged insects which visit the flowers. Experiments have proved conclusively that in most kinds of hardy fruits heavier crops are produced when the pollen of one variety is carried to the flowers of another variety of the same kind. Unless this is done many varieties will produce no fruit and almost all varieties bear better crops if pollen of some other variety is brought to them. The pollen is carried by the wild and hive bees and by other winged visitors to the flowers and (except in Nuts and Mulberries) by these alone. Sprays applied for the destruction of pests of fruit trees at times when these essential insects visit the trees will naturally cause the death of friends and foes alike, and the Council feels sure that it is only necessary to draw the attention of owners of fruit trees to the risk of killing these friends to avoid this source of loss. Spraying with various washes with the object of destroying green and black flies, caterpillars and the like, may be safely and effectively carried out up to the time the blossoms begin to open, and again after the petals have fallen, without risk of danger to the pollen carriers, and spraying should, therefore, be restricted to these times. Nothing is to be gained by spraying while the trees are in flower.

The Iris Society.—The object of the Iris Society, founded in 1922, is "To spread more widely the knowledge and love of Irises, to make their cultivation easier and more successful, and to encourage the introduction of new species and the raising of new and improved varieties" As the Society is still in its infancy, it cannot at first offer the advantages which it hopes to eventually bestow. The Committee expects to issue very shortly the first number of an *Iris Journal*, to which many of the best known Iris growers are contributing short papers on "How to grow Bearded Irises." Such experiences should be very valuable to those taking up the cultivation of Irises, as the writers live in different parts of the country, so that some of them have had to struggle with indifferent soils and unfriendly climates. The *Journal* will be issued free of charge to Members and to Members only. The Committee has now decided to admit to the Society all who are interested in Irises and who wish to join it. Ladies will be eligible, and the subscription is 10s. 6d. annually. Full particulars may be obtained from the Hon. Secretary, Mr. George W. Bunyard, The Royal Nurseries, Maidstone.

Appointments for the Ensuing Week.—Tuesday, April 22.—Newcastle and district Horticultural Society's lecture. Wednesday, April 23. —North of England Horticultural Society's show (3 days); Sheffield Chrysanthemum Society's meeting. Thursday, April 24.—Midland Daffodil Society's show (2 days); Norfolk and Norwich Horticultural Society's show (3 days); Royal Botanic Society's meeting. Friday, April 25.—Manchester and North of England Orchid Society's meeting. Saturday, April 26.—Spalding Bulb Growers' and Market Gardeners' Association's Daffodil show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Cheap Heating.* I beg to lay before your readers a statement of the inexpensive manner by which I am enabled to heat an Orchid house. The dimensions of the house are twenty-two feet by twelve and fourteen feet by twelve, being an area of four-hundred-and-forty-two square feet. This is heated by a small boiler, containing three gallons of water, which is connected by a flow and return pipe with a tank, carried by gutters of brick and Bridgwater-squares round the house, the cement being the Portland, which I find greatly superior to any other. A temperature of 90° can be obtained in a very short time, with abundance of steam at will. The fuel used is the cinders from my dwelling house, which, with three tons of anthracite, used in getting up the fire, is all that is used in a year, being a cost of about £3. The boiler is the invention of an iron-founder and a mason in this town, who are in the habit of building stoves and other like buildings. The power of the boiler is such, that I would undertake to heat a house of much larger dimensions with the same means. Mr Veitch, of Exeter, on a late visit to Truro, saw the plants and the mode of heating, and expressed his approbation of the method adopted, as being perfectly calculated for the growth of Orchids. The rapid growth of my collection under their present treatment has far surpassed my expectations. If the foregoing account should interest any parties, I should be happy to give them any information they may require on the subject. The sole object I have in making the circumstances known is to place in the power of persons of moderate income, who could not afford to incur the heavy expenses usually attendant on hothouses, the means of enjoying the beauties of hothouse plants. *H. S. Powell, Secretary, Royal Cornwall Hort. Society, Truro.*—*Gard. Chron., April* 21, 1849.

TREES AND SHRUBS.

LEPTOSPERMUMS.

Although we have had an exceptionally trying winter, with bitter north-east winds and up to 15° of frost in the third week of March, the Leptospermums have come through the ordeal with conspicuous success. This, will I hope induce those readers who believe these shrubs to be too tender, save for the south-west and other favoured spots, to give them a trial. It is probable, however, that the Leptospermums all need a very well-drained, light and even sandy, or gritty, soil. Give them that rooting-medium and plant them young in an open situation and few things can be more charming.

Though they will grow much taller these New Zealand and Australian Myrtles may be said to average six feet in height. They make erect, compact bushes of numerous slender, whip-like branches, amply furnished with small, Heath-like foliage, often tinted with a bronzy-red. They may be raised from seed, this being produced in great abundance, or from cuttings. In either case the young plants grow rapidly and many will begin to bloom when about a foot high.

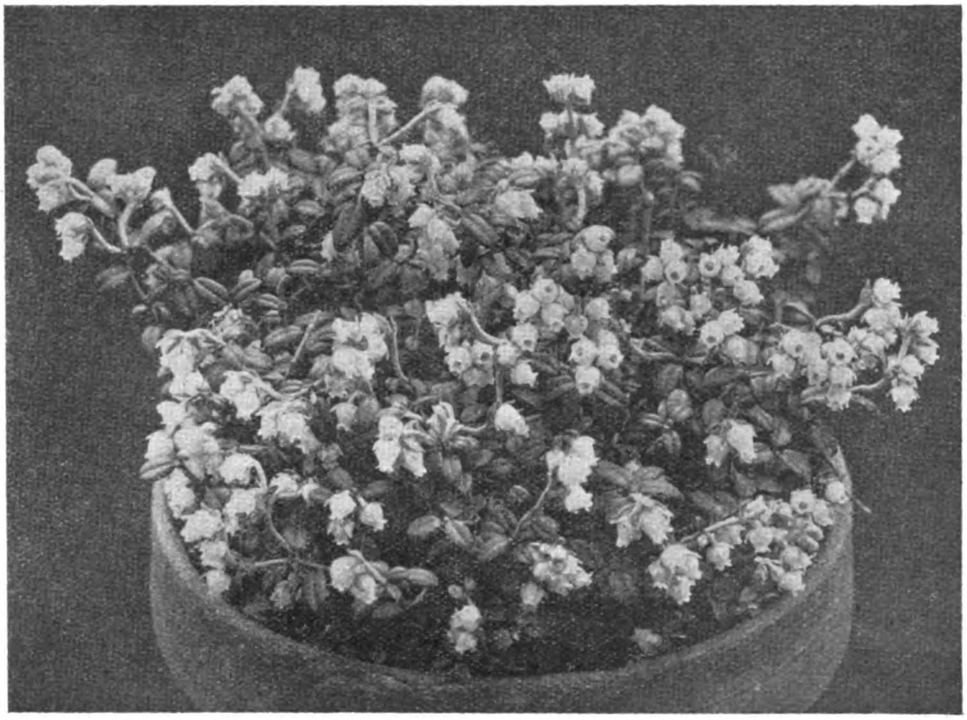


FIG. 92.—ARCTERICA NANA (SYN. ANDROMEDA NANA). R.H.S. AWARD OF MERIT, APRIL 8 (SEE P. 212)

The nomenclature of this genus appears to be somewhat confused, but I believe I am right in considering L. bullatum to be synonymous with L. scoparius. This has milk-white, Hawthorn-like flowers with a dark purple centre, whilst the more bronzy-leaved L. s. Boscawenii has blossoms of a pale blush-white with a crimson-purple eye. One of the best varieties is L. s. var. Nichollii, with ruby-crimson flowers of singular beauty. This remarkably fine form won high honours at the shows shortly after its introduction by Major Dorrien-Smith in 1908. It does not appear to be quite so tall-growing as the type, and it is interesting to note that the original shrub whence all specimens of this variety have sprung was found growing wild in a vast thicket of the type species near Christchurch, New Zealand.

L. s. var. Chapmanii, named after Mr. Justice Chapman who discovered it, is considered by many to be even better than the foregoing. It certainly has rather larger flowers and these are a rich blood-crimson. In addition to these there are Leptospermums with a range from blush-white to red or purplish blooms, a batch of seedlings always presenting great diversity in size of blossom as well as colour. But, while a large number of plants thus raised may be of inferior merit, some of the seedlings, as in var. Nichollii, for example, may be quite as good as the parent shrub.

L. laevigatum is an Australian species, with the same habit of growth and similar small, ovate leaves. This is actually an an earlier bloomer than the above-mentioned, the white flowers being borne in dense spikes at the extremities of the branches. All the Leptospermums are very floriferous, often being smothered with flowers from top to base, and a group will generally make a good show of colour from April or May until well after mid-summer. When the shrubs are inclined to get too leggy an occasional cutting-back of the main stems will promote a bushier growth. *A. T. Johnson, N. Wales.*

DAPHNE ODORA.

This deliciously-scented, evergreen shrub deserves to be more widely grown as, apart from its great beauty and fragrance when in flower, its glossy leaves and neat habit make it an attractive plant at all times. It is reputed to be tender, but probably soil and position have more influence on its well-being than temperature.

Two plants in these gardens, growing in light sandy soil at the foot of a low wall facing south, have made excellent specimens and never fail to give a profusion of their fragrant flowers in early spring. Propagation may be effected easily by cuttings. Shoots of half-ripened wood taken in July or August, inserted in the open ground and covered with a bell-glass root freely and soon make good plants. *W. Auton, Pyrford Court Gardens.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Regulating the Temperatures of the Houses.—The growing season of many Orchids has begun, and the conditions essential for the development of the plants should receive every attention, as the weather is usually very changeable during April. Periods of sunshine and shade, heat and cold, render it almost impossible to keep the temperatures of the houses regular, and careful attention should be given to arrangements for ventilation and shading. If these details are carefully attended to, fluctuations in the temperature of the house will be largely minimised. In regard to ventilation the local conditions should be considered; houses in sheltered situations may be more freely ventilated than those in exposed districts. Should cold and boisterous winds prevail it is advisable to regulate the temperatures by means of the heating apparatus, and the ventilators of the warmest house should be kept closed. At times when the external conditions are warm and still, air should be admitted more freely, opening the bottom ventilators first and, as the inside temperature rises, gradually increasing the amount of fresh air. The intermediate and cool houses should be particularly watched to prevent the temperature rising excessively high, and when the thermometer records 65° in the former, and 60° in the latter, the blinds should be lowered at once, allowing them to remain down on the cool houses until the sun has ceased to shine on the plants. Houses containing Cattleyas and their allies should have the shading withdrawn as soon as all danger of scorching by the sun's rays is past. At this particular time of the year, and especially following extremely dull, wintry weather, the foliage of Orchids is more apt to get scorched by sunshine than at any other time. Maintain a free growing atmosphere in each division by damping the floors and stages each time they become dry. Plants that are growing freely shoud be afforded liberal supplies of water at the roots; others that are sending up their flower scapes should be kept just moist at the base.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Pentstemons.—Autumn-struck cuttings of these popular plants will now be ready for planting in their flowering positions, and to be really effective they should be planted in whole beds or large groups. For massed effects the small flowering section, comprising Newbury Gem, Middleton Gem, and Southgate Gem is the most attractive, but the larger flowered ones are also handsome border plants.

Planting.—The late planting of deciduous trees and shrubs seldom results in complete success, but evergreens planted in April usually establish themselves quickly and do better than those planted at any other season. The present spring, with its prevailing cold winds, is particularly unfavourable for planting, and so long as growth is dormant it is preferable to wait for better conditions than to plant in cold, windy weather. Every preparation should be made, however, so that the actual planting may be carried out rapidly when the conditions are more favourable.

Evergreen Hedges.—The present is also a suitable time for planting evergreen hedges when conditions are favourable. No subject excels the Holly as a hedge plant, either in appearance or utility, but it frequently fails to establish itself quickly, and generally this may be attributed to planting too early. Hollies resent having their roots exposed to a cold, dry atmosphere, and warm, showery weather should be chosen for the work, even if it is necessary to wait for this until the end of April or beginning of May. Yew is slow growing but makes an ideal hedge, lends itself readily to any form of training and may be carried to almost any dimensions. Cupressus macrocarpa, its variety lutea and Juniperus macrocarpa also make good hedges and are very quick growing, but they have a tendency to become bare at the base after a few years. For a less formal hedge Thuya gigantea and Cypressus Lawsoniana are sometimes used and are excellent for the purpose. The value of mulching newly planted hedges can hardly be overrated, and they should all be heavily mulched immediately after planting.

Gravel Paths.—Nothing so detracts from the appearance of a garden as untidy paths; any that need resurfacing should be attended to forthwith. Where necessary weed-killer should be applied during dry weather, but while the paths are still moderately moist.

PLANTS UNDER GLASS.

By F. J. Clark, Gardener to Lt.-Col. Sir George Holford, Westonbirt, Tetbury, Gloucestershire.

Browallia speciosa major.—This is one of the most useful amongst blue flowering plants for autumn and winter blooming. Seeds may be sown now for early autumn flowering and again six weeks later for late autumn and winter decoration. Sow the seeds thinly in pans filled with light sandy soil and prick off the seedlings when they are large enough to handle into other pans; later place them singly into small 60's and finally into pots of five inches and six inches diameter, using a compost of fibrous loam, leaf mould or a little peat, with a little charcoal and sufficient sand to render the mixture open. A warm greenhouse temperature suits them best and the young plants should be pinched several times. A batch of these plants has been in flower here during the past six months. During the autumn they occupied a cool greenhouse; later they were introduced to a house having a warmer temperature in which, since Christmas, they have flowered profusely, and have provided useful material for dwelling room decoration.

Lilac (Syringa).—The Lilac is one of the most useful and easily forced shrubs, provided the plants are well prepared. After flowering they should be cut hard back to a dormant bud, on two years' old wood; the pots should then be plunged to their rims in a bed of soil in an open, sunny position, where they should remain throughout two summer seasons and be given a rest from forcing during one winter. No further pruning will be necessary until after the next forcing. Beyond the necessary work of watering and feeding the roots with liquid manure, the plants need but very little attention. To provide an annual supply for forcing purposes, two batches of plants should be grown for flowering in succeeding seasons and be treated in turn as advised. Amongst the best sorts for forcing are Charles X., purple; Mme. Lemoine, double white; Marie Legraye, single white, and Gloire de Lorraine, red. The finest dark purple variety is Souvenir de Louis Spath.

Violets in Frames.—To provide for suitable plants for frame culture next autumn, the runners should be transplanted forthwith. A border under a wall facing east is the best summer situation for Violets, as the wall will afford the plants shade from the afternoon sun. The ground, which should have been deeply dug and manured, should receive a liberal dressing of wood ash and soot, be well worked to a good tilth and made firm. Runners of the double-flowered varieties should be planted one foot apart each way, whilst the large-leaved, single-flowered varieties should be allowed a space of fifteen inches each way. From time to time throughout the summer the runners on the young plants should be pinched off. During hot weather the plants should be sprayed with clean water each afternoon or evening to keep down attacks of red spider.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Ventilation of Fruit Houses.—In view of the prevalence of cold east winds this spring more than ordinary care has been required in the ventilation of fruit houses, especially when sudden bursts of sunshine have followed cold storms in quick succession. By the time these remarks appear in print all the trees in the fruit houses will be in an advanced stage of blooming, which will make ventilation a very difficult problem to cope with. For unless immediate attention is given in admitting or shutting out fresh air on these occasions the trees or vines may receive a severe check, which at a later date will be more noticeable than at the present time. The night temperature is another important factor at this stage of growth. It will be wise to allow the temperature to fall three or four degrees rather than force the hot water system excessively, for the use of much fire heat would cause an arid atmosphere which is not to be recommended. The grower should aim at maintaining a temperature suitable for steady growth of the trees and vines. Close the houses early in the afternoon to make the fullest use of sun heat, and when fire heat is necessary promote a moist, genial atmosphere by damping the paths and walls freely.

Cucumbers.—Plants that were raised early in the year are fruiting freely; to keep them in a healthy condition give them liquid manure on frequent occasions, and apply a top dressing of a rich compost directly the roots appear on the surface, and do this often as is necessary. To secure a crop of straight fruits all imperfect specimens should be removed at an early stage. Cucumbers in full bearing will require attention every other day in regard to stopping and tying the young shoots. During hot weather the plants require copious supplies of moisture at the roots. Close the house early to make every possible use of sun heat, for Cucumbers revel in much warmth and atmospheric moisture.

Frame Cucumbers.—Provided a hot bed of fermenting material can be formed for growing a crop of Cucumbers in frames the seeds may be sown now in small pots filled with an open compost and germinated in a propagating frame. Failing this the receptacles may be stood in a box filled with some moist material and placed on the water pipes, covering the box with a sheet of glass. Cucumbers germinate very quickly at this season of the year, therefore it will be necessary to have the fermenting material in readiness to receive the young plants, for Cucumbers should never be allowed to become starved in small pots or a severe check to quick growth is sure to follow.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Watering and Mulching.—As the sun gains power and the weather becomes warmer and possibly dry, wall fruit trees should not be neglected in the matter of watering. It is surprising how soon trees on warm south and west walls suffer in this respect. Even if rain is abundant, moisture scarcely ever reaches the roots of trees planted closely to walls, a point that is often overlooked, whilst the wall absorbs and rapidly evaporates any moisture that may reach it. Neglect to water trees trained on walls is often the cause of the fruits dropping. Copious watering is especially necessary after the fruits have set to encourage them to swell quickly. Lightly fork over the surface, make a shallow depression near the stem of the tree, and then water the soil thoroughly and apply a good mulch of well decayed manure afterwards. Cherries, Peaches and Apricots will respond readily to this treatment, and the trees will not be so liable to attacks of insects if kept moist and growing freely.

Black Aphis.—This is one of the worst pests of fruit trees. Sweet Cherries are particularly susceptible to attacks by black fly. As soon as the Aphides are detected, or even before, syringe the trees on two or three occasions with Quassia extract diluted with rain water.

Loganberries.—These and other kinds of Rubus are usually sold in pots, and pot specimens may still be planted. Give them a sunny position, and allow plenty of room between each plant, as they are strong growers. The fruits of the Loganberry make a very good preserve, as do those of the cultivated Blackberries. Well mulch the plants with decayed manure to keep them moist at the roots, watering them if the weather is dry. Do not allow too many shoots to develop.

THE KITCHEN GARDEN.

By WALTER Y. STAWARD, Gardener to MRS. JOHN FEENEY
The Moat, Berkswell, Warwickshire.

Planting Asparagus Beds.—Where the planting of new Asparagus beds is contemplated the work should be carried out as speedily as possible. Provided the soil has been well prepared during the winter months the site should only now require to be well forked over. Where it is intended to form new beds by sowing seeds this work may also be carried out now. Sow the seeds thinly in rows made 18 inches apart.

Marrow Beds.—Where such materials as leaves and stable litter are available a good heap should be collected in readiness for the reception of the plants. The seeds may be sown now in pots and germinated in a little warmth and the seedlings transferred to cool frames to be well hardened off before planting them out-of-doors.

Onions.—Seedling Onions growing in boxes and intended to produce large bulbs should receive plenty of air and light. They will become hardened thoroughly and take but little check when transplanted. Retain as much soil at the roots as possible when lifting them for transplanting and water each seedling after it is planted to settle the soil about the roots.

Rhubarb.—Stools that have been forced and are now finished bearing should be replanted in a nursery bed. In due time they will make strong clumps and will be suitable for forcing again in about two years.

Brussels Sprouts.—Seedling Brussels Sprouts growing in boxes will now be well hardened and ready for planting out-of-doors. The ground where they are to be grown should be made fairly firm. Allow plenty of room between the rows and the plants in the lines.

Celery Trenches.—Trenches should be dug and made ready for the reception of the plants. Place well-rotted manure in the bottom and dig it well into the soil. A suitable site for Celery trenches is where Brussels Sprouts have been the previous crop.

Seed Sowing.—Make further sowings of Peas, Mustard and Cress, Radish and Lettuce for successional cropping.

BULB GARDEN.

LILIUM SULPHUREUM.

ALTHOUGH this Lily succeeds occasionally in the open, its season of flowering is so late, that it is best grown as a greenhouse plant: it may be grown well in pots, but does better planted out in a cool greenhouse.

A suitable rooting medium is a fairly heavy loam with the addition of some decayed vegetable matter, leaf-mould and coarse sand. When doing well this Lily will attain a height of from ten feet to twelve feet and produce its large, very pale sulphur, sometimes nearly white, trumpets, which are externally stained with purplish-red, with freedom. By affording the plant generous treatment when in growth, a period of thorough rest, and growing it in a light and airy position during the summer, it will thrive and flower well.

The Indian Lilies are very beautiful plants and adaptable for growing in suitable houses; in addition to the subject of this note, they include L. nepalense, L. neilgherrense, L. Wallichianum, and some few others not easy to obtain.

L. sulphureum is easily increased from the bulbils which are produced in the axils of the leaves.

LILIUM MARTAGON VAR. DALMATICUM.

LILIUM Martagon and its varieties are perhaps the hardiest of all Lilies and are most suitable for the mixed border and decorative planting generally.

The variety dalmaticum attracts attention by reason of its deep wine-coloured flowers. The plant attains a height of from six feet to eight feet, and thrives in a deep, well-drained loam containing lime.

The Martagon Lilies have a short resting season and should be planted early.

A striking contrast is obtained between the white blooms of L. M. album and the dusky flowers of dalmaticum.

These useful and beautiful Lilies are easily raised from seeds. *Ralph E. Arnold.*

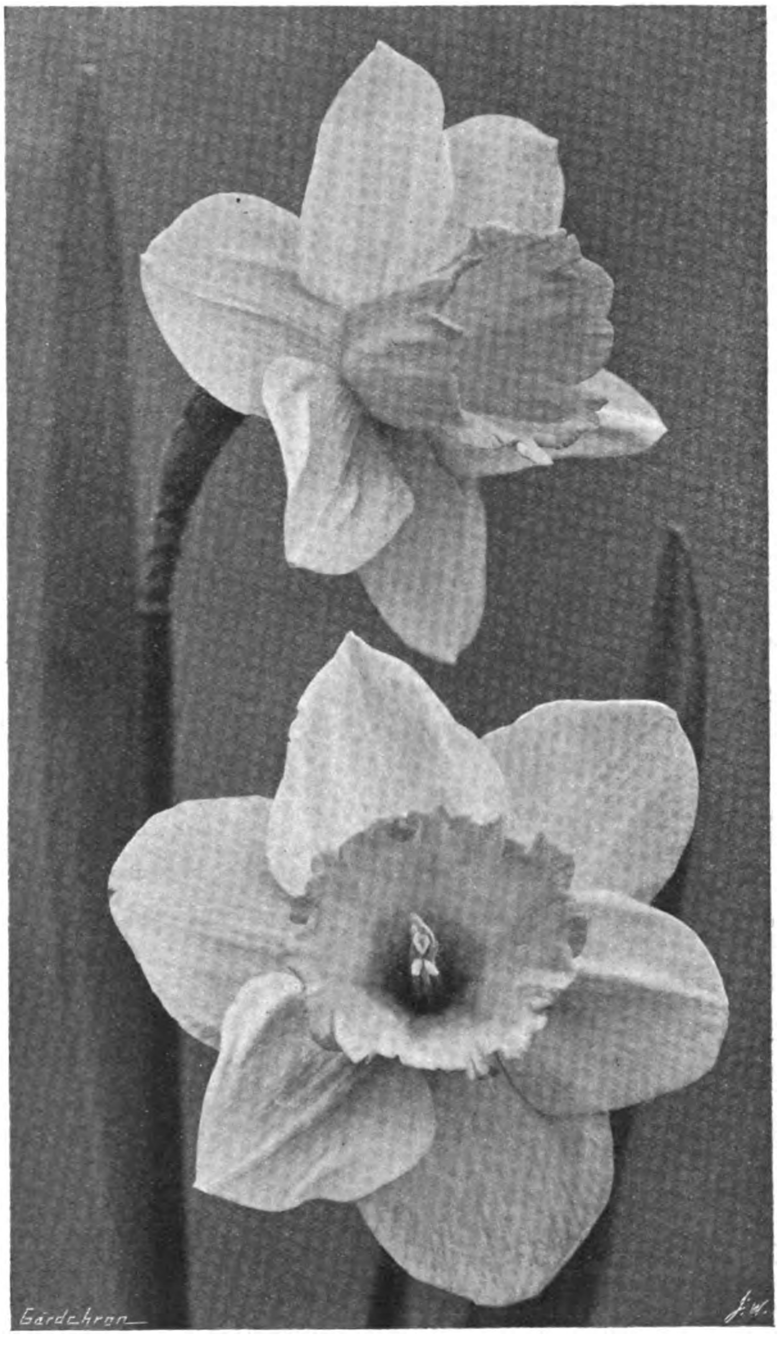


FIG. 93.—NARCISSUS FORTUNE; R.H.S. FIRST CLASS CERTIFICATE), APRIL 8 (SEE P. 212.

NOTICES OF BOOKS.

The Cultivated Evergreens.*

This work is described as "A Handbook of the Coniferous and most Important Broad-leaved Evergreens Planted for Ornament in the United States and Canada," and it is a compilation of articles written by experts in the United States and Canada, edited by Prof. L. H. Bailey. The title, however, is misleading, for the work is not confined solely to evergreens, whilst numerous well-known evergreens are not mentioned. The book is divided into four parts. Part 1, pp. 1–166, is devoted to the place and care of Coniferous (Gymnospermous) Evergreens grown for Ornament. Part 2, pp. 169–331, deals with a Systematic Enumeration of the Conifers Cultivated in North America; and Part 3, pp. 335–371, is devoted to General Advice on Broad-leaved Evergreens; and Part 4, pp. 375–412, to a Check-list of Woody Evergreens.

Part 1 contains a good deal of interesting information which might have been shortened without reducing its value. The most important chapter in this part is chapter 4 on Insects, Diseases, and Injuries of Ornamental Conifers. Although primarily written for cultivators in North America, the work contains much that is of interest to Europeans; whilst the information is clearly given without the use of too many technical terms.

Part 2 includes descriptions of a large number of Conifers, arranged systematically. The descriptions are short and to the point, as might be expected from Mr. Alfred Rehder, who is responsible for this section. He has followed international rules in nomenclature which, however desirable from a strictly scientific standpoint, are sometimes less desirable for use in gardens and forests. For instance our old friend the European Spruce is everywhere known as Picea excelsa, and why not leave it at that for gardens instead of altering it to Picea Abies? Again, for the North American White Spruce, a tree that was for a very long period called Picea alba, and was then called in America for many years Picea canadensis, we are now given the name of Picea glauca. The common Silver Fir, which from infancy we have called Abies pectinata, is now Abies alba, and so on. Whilst Mr. Rehder is perfectly correct in the adoption of these names from a botanical point of view, one wonders whether the horticulturist and forester are not deserving of some consideration. These constant changes of plant names are a source of considerable trouble and annoyance to nurserymen and others, and if botanists can select certain genera and say that they shall not give place to older names where such exist, surely the same could be applied to well-known species that for many years have been cultivated under a particular specific name. For it is not as if the names now applied are in all cases permanent. At any time someone may unearth a still older name than the oldest at present known.

In this and in other parts of the book one notices descriptions of numerous deciduous trees. Thus we find the Larches, Pseudolarix, Deciduous Cypress and Ginkgo all described. How these were allowed to creep into a book on evergreens is difficult to imagine. Taken all through, however, the part dealing with Conifers is very well done.

Part 3 is the most disappointing section of the book. Most of the evergreens mentioned are natives of North America, but one misses such subjects as Magnolia grandiflora, Arbutus Menziesii, Umbellularia californica, Arctostaphylos Manzanita, Castanopsis chrysophylla, Quercus dentata, &c. Whilst it may be argued that some of these plants are not very hardy, they are much hardier in Europe than some of the Conifers described, and there are many parts of America where they must find a place in gardens. The space devoted elsewhere to deciduous plants might well have been saved for a more comprehensive list of broad-leaved evergreens.

The work concludes with a very good index. The mechanical part is good, for although the paper is heavy, letterpress and illustrations are both good. *W. D.*

NATIONAL ROSE SOCIETY'S LIBRARY.

There has just reached me a copy of the *Book of Arrangements* of the National Rose Society for the current year. It is impossible to peruse this book without being impressed by the remarkable and rapid expansion of the Society in recent years; and the list of members, together with the financial resources of the Society, places it in a position unparalleled in the annals of special floricultural associations.

In turning over the pages of this publication my attention was arrested by the heading on page 23, "List of Books in Library." Whatever may be thought of the N.R.S. by its members and admirers in the other departments of its activity it must be confessed that for a Society of such high and influential standing this unimportant and meagre collection of a few ordinary, commonplace, everyday books on the Rose, called a library, is a very weak spot in the Society's sphere of action and one which offers to the Council a necessary and befitting opportunity for extension.

Firstly, the cataloguing is most indifferently done. There is no indication, after the bare titles, of edition, size, or date of publication, save in the case of the Year Books and Annuals. This class of Rose literature constitutes by far too large a proportion of the collection, and from some points of view the books have but little merit and certainly no marketable value to speak of. If we eliminate a few other books, mainly cultural treatises, which can be picked up here and there on the second-hand bookstalls at prices varying from half-a-crown a volume to something under half-a-sovereign, there is nothing left of any special service to those members of the Society who may wish to study the Rose from other standpoints than the merely cultural one. And yet the Queen of Flowers affords to its keenest admirers an immense field for those who wish to delve into its history, literature and nomenclature.

I have in times past lamented in the columns of this journal the truly inexplicable apathy of the Council of the N.R.S. in failing to secure that unique and remarkable collection of Rose books known as the Castlecraig Collection; 233 volumes and pamphlets on Roses and Rose culture. What a lost chance—never to be regained—of forming the basis of a magnificent library of Rose books and one well worthy of a truly national society. But the powers that be let the opportunity slip and like many more valuable bibliographical treasures the collection was snapped up by an enthusiastic Rose-lover on the other side of the Atlantic and has now found a new home in the United States where it will probably remain for all time. Yet it might have been retained in this country, where its educational value would have been incalculable for those members of the Society who have literary tastes or who have need of authorities to consult in their research work. Such a collection can scarcely be put together again for probably half a century, if at all. And the whole lot could have been secured for the—shall I say paltry—sum of £68.

Considering the indebtedness of English rosarians to French raisers it is curious that there are none of the most important French books in the N.R.S. collection. Surely the prince of Rose painters ought to be represented in a National Rose Society's library. And yet there is not a copy of any edition of Redouté, nor is the very rare German Rose book by Roessig included, nor the English work by Mary Lawrance, nor, stranger still, a copy of that very beautiful modern book by one of the Society's Vice-Patronesses; I refer to the *Genus Rosa*, by Miss Willmott.

To enumerate other important omissions, such as Andrew's *Monograph on Roses*, Crépin's contributions to Rose literature, and many others too numerous to mention would be to compile a Rose bibliography in skeleton form, and the criticism may be summed up in one word—there is nothing, nothing at all of any real service in the N.R.S. collection, to the student of floriculture who wishes to specialise in Rose history, literature and nomenclature. And that there are students who need the means of gratifying their desire is exemplified by the work of some of the Society's members published during the past few years or more. If some of these writers could have had access to classic authorities and trustworthy sources of information in the Society's library we might have been spared some of the very obvious errors, mis-statements and blunders in nomenclature that disfigure the writings of those who, although possessing high cultural attainments, have not the same capacity or opportunities for critically treating matters of history, literature or nomenclature. There is, it is strange to note, no standard authority on the last-named subject available for members in this library, hence when I take up one well known author's book on Roses it is astonishing to find what little regard he has for the correct spelling of those names of French origin.

Prompt measures ought, therefore, to be taken to build up a first-class collection of books, English and foreign, on all subjects relating to the Rose. They are much more numerous than many persons are aware of, and the rarest and best only appear on the open market at lengthy intervals.

In the list of Honorary Foreign Members, p. 212, will be found the name of Jules Gravereaux, the eminent French Rosarian of world wide fame, whose Rose garden at L'Hay, near Paris, was one of the wonders of the Rose world. I remember his marvellous display in the Retrospective Rose Exhibition in Paris, in May, 1910. As the name appears the uninitiated might be excused for thinking that M. Gravereaux were still a live member of the Society; perhaps the Editor is under that impression, but it may be useful to mention that Gravereaux died so far back as 1916. None of his very interesting and valuable works, especially those in which nomenclature forms a part, has ever reached the shelves of the National Rose Society's library. That fact seems astonishing

It might be asked why should I, who am not a Rosarian or even a member of the Society, be so concerned with this subject? The question is easy to answer. As a writer in the public press for forty years I have had occasion to deal with many subjects of public interest in floriculture. For some little time past my attention has been drawn in the direction of the Rose, and for the purpose of verification of certain dates and facts, which could only be done by reference to contemporary authorities, I have been much hampered in my work because nowhere in London could I get access to the authorities that were required. My early training in research work taught me never to accept secondary evidence if direct primary evidence could be obtained. Many writers in the horticultural press have yet to learn the paramount importance of this resolve. *C. Harman Payne.*

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* *The Cultivated Evergreens*, edited by L. H. Bailey. Published by Macmillan and Co., New York, Toronto, Calcutta, London, &c. Price in England, 31s. 6d. net.

IMPROVEMENT OF LAWNS.

THE present is a suitable time to apply to lawns a light dressing of equal parts of old potting soil and well-decayed manure that has been passed through a half-inch sieve. This material will enrich the soil and protect the young roots from cold winds. Good results follow the use of sea sand, which may be succeeded by an application of sulphate of ammonia. Great care is, however, necessary when using sea sand, and it should never be mixed with a fertiliser. The correct quantity to apply is 2¾ lb. to the square rod.

Weeds do much damage to lawns. They absorb from the soil food materials intended to nourish the turf, and suppress the finer grasses. Daisies may be eradicated by the consistent use of lawn sand. Dry weather is best for its application, and full directions are given by the makers as to the quantity to use. It is inadvisable to roll or brush the grass for three or four days after the use of lawn sand or its effect may be neutralised. Dressings at intervals of a month during spring and summer are necessary to exterminate Daisies, which are extraordinarily tenacious of life. Plantains and Dandelions may be killed by continually cutting them off with an old knife. Experience has proved that any dressing likely to destroy them will injure the grass also.

Earthworms are very active in spring. They throw up to the surface numerous unsightly "casts," but they are impatient of soot water. If, therefore, it is possible to water lawns with soot water, the worms will come to the surface and may then be destroyed. *James A. Paice.*

PLANTS NEW OR NOTEWORTHY.

CLIVIA KEWENSIS.

(C. MINIATA × C. MINIATA VAR. CITRINA)

DURING the spring of 1916 flowers of Clivia miniata were crossed with pollen of C. miniata var. citrina; the resulting seedlings flowered during 1919, and proved to be typical C. miniata. Two of the plants of the first generation were cross-pollinated, and from the resulting seed twelve plants were raised. During the spring of 1923 a number of these flowered, one plant producing yellow flowers. During the present spring the remaining plants have flowered, and with the one exception mentioned all are typical C. miniata, the flowers on the individual plants varying somewhat in length and breadth of petal.

The blooms of the yellow flowered plant resemble those of C. miniata but the petals are not so broad as in the variety citrina; on the other hand in growth and stature the plant more resembles the variety citrina, having its stouter stem and shorter leaves arranged in distinctly distichous fashion. When in bloom during 1923 the flowers were self-pollinated but failed to produce good seed; as in the variety citrina it has so far shown no signs of producing any offsets, in fact up to the present none of the seedlings has done so.

It is doubtful whether C. citrina is really a variety of C. miniata, as it differs considerably in general appearance. In any case the hybrid—C. kewensis (fig. 94)—is interesting in as much as it may prove the forerunner of a race of yellow-flowered Clivias. The plant known as C. miniata var. citrina has always been scarce in cultivation. Clivia miniata citrina is said to have been collected wild in Zululand by Capt. Mansell and was first flowered by Mrs. Powys Rogers, of Perranwell, in 1892. It was also sent to Kew by the Rev. W. H. Bowden, of Bow, North Devon, who also obtained it from Zululand. This plant flowered at Kew in April, 1899. The hope was then expressed that it might prove valuable for cross breeding with C. miniata, from Natal, but there is no record of this having being done.

Clivia miniata var. sulphurea is mentioned in *Illustrirte Garten-Zeitung*, in 1888, but its origin is not indicated.

On May 3rd, 1904, C. miniata var. aurea was given an Award of Merit by the Royal Horticultural Society, the plant being exhibited by Mrs. Powys Rogers, of Perranwell. It seems probable that this plant was identical with C. miniata var. citrina. *J. C.*

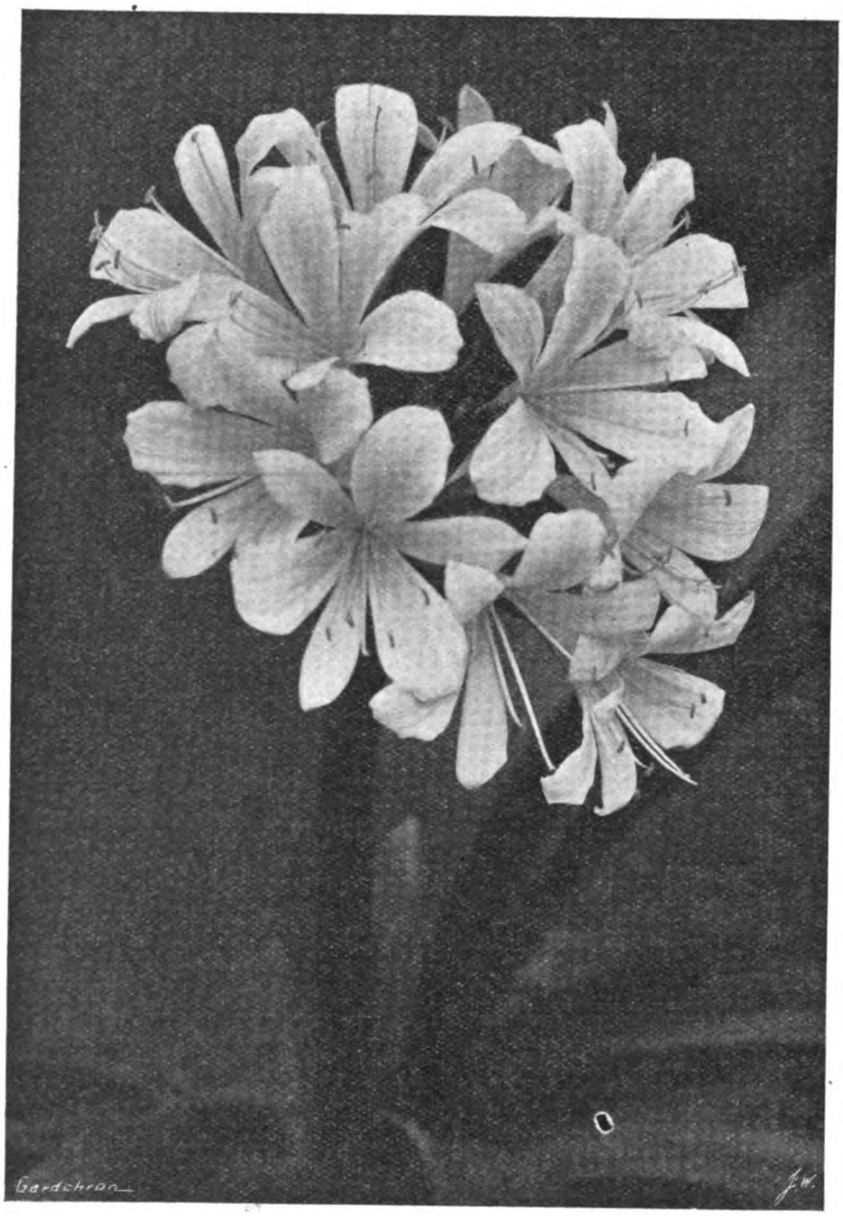

FIG. 94.—CLIVIA KEWENSIS.

ALPINE GARDEN.

GENTIANA DECUMBENS.

(SUPPLEMENTARY ILLUSTRATION).

THIS handsome plant is a native of the Himalayas and other parts of Central Asia. It belongs to a section of the genus which produces tufts of narrow, lanceolate leaves, from which arise decumbent, ascending stems, clothed most of their length with beautiful flowers of various shades of blue and purple. To this group belong the beautiful Himalayan G. Kurroo, with its azure-blue flowers sprinkled with white towards the base. Another charming member of the group, is G. dahurica from North-eastern Asia, with flowers varying from deep blue to purple. The type has blue flowers, but other coloured forms are met with under the names of G. Przewalskii and G. gracilipes.

G. decumbens is a short lived perennial, some plants going off after flowering, while others continue to flower for several seasons. As, however, it sets seeds freely there is no difficulty in maintaining a stock of it. It is one of the easiest to grow, doing well in deep, moist, loamy soil, and it is just the plant for a sheltered pocket in the rock garden, commencing to flower in July and lasting well through August in a cool position. These late flowering Gentians are especially valuable, as they bloom when the majority of alpines are over. The leaves of G. decumbens are about six inches long, while the ascending stems, clothed with leaves, reach a length of nine inches or more. The large, trumpet-shaped flowers are produced mostly in pairs in the axils of the upper leaves, with a cluster at the top. In the species the flowers are of a beautiful blue, but there is also a charming variety with pure white flowers which is depicted in the supplementary plate that accompanies this issue. *W. I.*

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RHODODENDRONS.

GARDEN RHODODENDRONS.

THE next decade will probably see a greatly increased interest taken in the cultivation of Rhododendrons. Many of the fallacies, popular and exclusive, concerning them have been exploded during the past twenty years; and it is safe to say that amongst the many hundreds of species and thousands of hybrids, plants may now be found suitable to almost any soil and adaptable to any climate found in the British Isles. The old objection, that Rhododendrons remain in flower for so short a time, is not true of the best hybrids; and in any case this defect may be overcome by means of a discreet selection of hybrids and species.

Several complete and expensive volumes dealing with the genus have appeared of late years; but no cheap handbook for the amateur has been issued since the publication of Mr. William Watson's *Rhododendrons and Azaleas* in the Present Day Gardening Series, thirteen years ago; and that has long been out of print. My object is to provide an easy introduction to the study of Rhododendrons, in the hope that I may, firstly, encourage the ordinary householder to cultivate and care for Rhododendrons where he would instinctively abandon his garden to Privet, Portugal Laurel, Yew, or some other commonplace shrub; and secondly, to assist the owner of a small estate in the country to form the basis of a good Rhododendron collection, to guide him or her in the selection of types, and to indicate the probable cost in time, labour, and money.

In this way, I hope to arouse a more general interest in what is, perhaps next to the Rose, the most astonishing and beautiful genus of woody plants in the world. More than half a century has elapsed since Sir Joseph Hooker revealed the beauties of the Himalayan Rhododendrons, yet somehow the public have not shown that zeal for their cultivation which one might have expected. They are afraid. They are timorous for two reasons. In the first place the cultivation of Rhododendrons is at present chiefly in the hands of a comparatively few rich landowners, and the impression has got abroad that it is a very expensive hobby. And so it can be. In the second place, there is a prevalent belief, not only that Rhododendrons are tender, but that they are difficult to cultivate. This is another way of saying that it is an expensive hobby. A person might well hesitate to experiment with plants costing him half-a-guinea each if there was any risk that they would perish in the first winter; nor has the professional man the time for delicate gardening operations. That fear was no doubt justifiable in the early days. To-day there is no need to experiment. We can select well-tried species from those which have long been in cultivation. We have a very fair knowledge of what they will and what they will not endure. This knowledge we owe mainly to the aforementioned landowners, who have tried out the plants and stood the losses.

As for the alleged expense, a large collection is no doubt an expensive luxury, but much joy and satisfaction may be obtained from a dozen well selected bushes, the cost of which is trivial, especially if the cultivator is prepared to wait a few years before they flower; not at all a bad plan, as it enables him to watch their behaviour and, if necessary, alter their position. He can also learn something of their idiosyncrasies. If then there has been comparatively little progress during the past fifty years since Rhododendrons were first raised in bulk in this country, we may confidently anticipate rapid progress and popularisation during the next half century.

There are now in cultivation Rhododendrons from the Himalaya, China, Japan, North America, Central Asia, and Europe. Many of them are quite hardy. There are also hundreds of hybrids hardier, more floriferous, and more permanently in bloom than many of the species, though not necessarily superior as a class.

It may be pointed out at once that there is no such thing as absolute hardiness. All plants dubbed "hardy" in this country or elsewhere are comparatively hardy. Woody plants, so far as their constitution is concerned, are generally elastic. So also are climates. In the British Isles the climate is almost always abnormal. If there is such a thing as a normal year, we never experience it. Consequently plants perish annually by the thousand; and our parks and gardens, which depend for effect largely on exotics, feel the losses keenly. But it would be as incorrect to assume that there are no losses amongst Rhododendrons in their native home, as it would be to assume that our native plants never perish owing to the fickleness of our climate. The constitution of a plant is not infinitely elastic, and if stretched beyond a certain point it breaks. If it is a valuable introduction—a Rhododendron for instance—we take reasonable precautions against putting too great a strain upon it, since we cannot control the lengths to which our climate will go.

From this it follows that we are likely to find a greater proportion of hardy Rhododendrons amongst those born and bred in a country blessed with an uncertain climate; and that the majority, which hail from a land where the seasons are as fixed, regular, and methodical as the rising and setting of the sun, will probably prove troublesome. Therefore Rhododendrons from Japan, central and East China, North America and Europe, are more likely to prove hardy throughout the British Isles than those from south-western China and the southern slopes of the Himalaya; and the latter in turn are less suspect than those from Indo-Malaya in general, including far western Yunnan, the Irrawaddy mountains, and the foot hills of the Himalaya.

Rainfall is more important to woody plants, and especially to such as thirsty Rhododendrons, than high or low temperature. Their distribution within the region of their greatest development proves this. Hence the parts of Britain where the majority would probably thrive best are the Western Highlands, the Lake District, and North Wales. Experience proves that they also do well in Cornwall where the climate is equable. The advantages of Cornwall have, however, been grossly exaggerated. Limestone is poison to most species—not all. It therefore behoves us to take note of the soil.

In Britain limestone and calcareous rocks generally were developed in both the Palaeozoic and Mesozoic epochs—in the former as carboniferous limestone and in the latter chiefly as chalk. Only where these rocks actually obtrude themselves on the landscape need we worry ourselves.

Mountain limestone is found in the six northern counties of England and in Derbyshire. Chalk forms the Kent and Sussex downs, and crops out with other Cretaceous beds in parts of Dorsetshire, Hampshire, Wiltshire, Oxfordshire, Buckinghamshire, Hertfordshire, Cambridgeshire, Suffolk, Norfolk, Lincolnshire and Yorkshire. This sounds rather appalling, but as a matter of fact it is quite reasonable, and we should be wretched without it. This is not to say that anyone who has the misfortune to live in those parts cannot grow Rhododendrons. Far from it. The obnoxious rock only reveals itself in hilly regions; in the valleys it is either denuded or more or less sufficiently clothed with soil. On naked chalk hills and on good solid British clay, the cultivation of Rhododendrons presents a serious problem, though even on such land pockets of greensand occur, which afford sanctuary; elsewhere it is a comparatively easy matter.

Therefore, reader, if your garden clings to a chalk eminence or a dolomite scarp, you should refrain from cultivating Rhododendrons and stick to common, safe, everyday plants; unless, indeed, you are resolved to experiment. In any case the eastern counties are, for other reasons, unsuitable; and happily much of the chalk and clay inflicted on us is conveniently massed in England's kitchen garden. There is plenty of good ground left without raking over the cretaceous dust bin.

The precautions to be taken in cultivating Rhododendrons and the facts to be borne in mind will be discussed later.

Although the distinction made in horticulture between Azalea and Rhododendron is not recognised by botanists, yet from the gardening point of view a real gulf divides them; and the province of each is so large that I shall confine my remarks chiefly to what are ordinarily called Rhododendrons.

In the selection of species and hybrids recommended, I shall be guided chiefly by the following principles.

(1). *Access.*—No matter how hardy or otherwise desirable a species is, if it is not on the market the ordinary person cannot get it. He might as well cry for the moon. It may or may not be in cultivation, but the ordinary test of availability is whether the nurseryman has it. There are scores of species in cultivation which are not on the market, and, therefore, not available to the public. These I have almost entirely ignored.

(2). *Hardiness.*—The person who can afford six shillings for a book on Rhododendrons, a jobbing gardener, and a few guineas for plants, is not necessarily able to afford a greenhouse. He may not wish to acquire one. I have, therefore, omitted those species which require winter protection.

(3). *Climate.*—So far as possible I shall confine myself to species which are accustomed to an uncertain four-stroke climate, such as is enjoyed by Japan, North America and central China. If, however, a representative collection is desired, risks must be taken. It is not possible or desirable entirely to exclude regions possessed of a cast iron climate; to do so would necessitate omitting the richest Rhododendron area in the world—Indo-Malaya.

(4). *Economy.*—For the majority of growers economy is most important. I have given indications of cost, and shall omit the rarest species (even when available) and the most sumptuous hybrids for fiscal reasons. *F. Kingdon Ward.*

(*To be continued*).

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM HYBRIDS.

Some idea of the activities of the hybridist and the splendid additions to gardens resulting from crossing may be gained when it is stated that over one thousand crosses between Odontoglossums proper have been recorded as well as a very large number between Odontoglossum and Cochlioda, Miltonia, Odontioda, Oncidium and other genera. Of the large number of Odontoglossum hybrids, O. crispum is one of the parents in over one hundred direct crosses, and, transmitted through its descendants, it gives one of the most salient features in the greater part of the hybrid Odontoglossums of to-day.

O. Pescatorei came next in importance as a parent and the combining of the two species in O. ardentissimum laid the foundation of this superb class of home-raised Orchids which has been developed in a manner such as the earlier operators never thought possible.

The development is indeed wonderful if we call to mind the comparatively small number of species available as parents and the restricted range of colour displayed in them. In the matter of size and shape the hybridist has been aided greatly by nature, for home-raised plants have a tendency to improve when propagated from seeds, whether of species or hybrids; this is seen very plainly in home-raised Odontoglossum crispums, which are far superior to the imported type. Part of the superiority may come from the extra vigour of the home raised varieties and part from the use of good parents, but a study of the flowers of the plants raised at home shows certain improvement beyond this, and a great asset for the hybridist is that nature works with him in this way in all his efforts.

In considering the increase in the size of the flowers of diverse crosses some important points are revealed, one unexpected result of crossing with O. Hunnewellianum as a primary parent being remarkable. This species has small, yellowish flowers, spotted with red-brown, and an inconspicuous, much rumpled and fringed lip. To many its seemed useless for hybridising, but it influence being transmitted through two or three subsequent crosses the lip of the progeny became quite flat and broader than in other more likely crosses. And the same is true of other crosses, the seeming defects in either parent tending to improvement in the progeny.

In colour, too, the result is wonderful. On viewing the colours of the primary crosses it is difficult to see how the almost wholly purple O. Purple Emperor class could come about. But the tendency in crossing two more or less blotched forms is for the colour in the resultant hybrids to merge and give almost self-coloured flowers. This is more in evidence in those of white ground parents, the yellow grounds being more constant in their blotching, which usually adheres to the red and red-brown class. O. Wilckeanum (crispum × luteo-purpureum) and O. harvengtense (crispum × triumphans) give other standards of excellence and it is interesting to note that even the varietal characters are carried on, as seen by the clear yellow of the O. luteo-purpureum Vuylstekeanum, which rarely fails to show in suitable crosses. The same applies to the light form of O. triumphans.

O. Harryanum is one of the most important factors in hybrid Odontoglossums. It is the only species with blue and Tyrian purple in its markings. In some the dark blue in the lip is most pronounced, and although the lip commonly carries on its features to the lip of the hybrid, yet hybridists know that the blue tone often strays into the other segments and, once secured in that way, it becomes active in future crosses with surprising results. Wonderful though the results are up to the present, there are much more surprising things to come. It would be advisable for the hybridist to take occasionally some of his best hybrids and cross them again with the primary species. A return to the species in this way invariably gives good results. *J. O'B.*

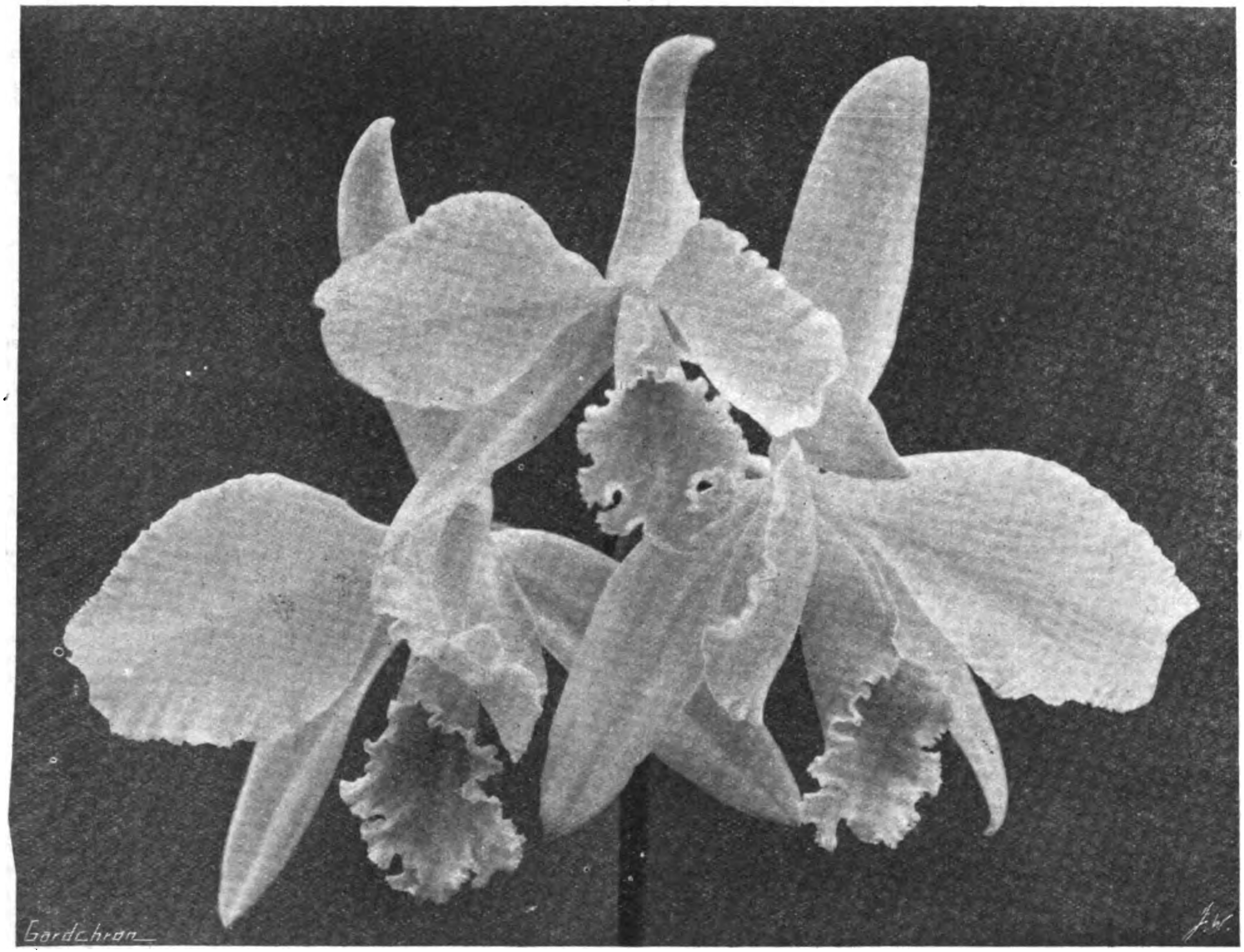

FIG. 95.—LÆLIO-CATTLEYA ORANGE BLOSSOM VAR. JUNE: R.H.S. AWARD OF MERIT, APRIL 8 (SEE P. 211).

LAELIO-CATTLEYA ORANGE BLOSSOM.

The original hybrid between Laelio-Cattleya Elinor and L.-C. Trimyra, raised by Sir George Holford, is of very mixed descent. The species concerned in its origin are Cattleya Schröderae, C. Trianae, Laelia cinnabarina, L. harpophylla, and L. flava. Seeing that the three last named species have bright hued flowers it is easy to discover whence L.-C. Orange Blossom var. June (Fig. 95) obtained its handsome orange-yellow colouring, while to the Cattleya parents it owes its large size and breadth of segments.

INDOOR PLANTS.

COTYLEDON GIBBIFLORA.

Better known to most gardeners as Echeveria, the genus Cotyledon, consisting of semi-hardy and greenhouse plants, does not find that place in gardens which it once held, yet there is no winter-flowering plant which for ease of management, economy in cultivation and durability of flowering, combined with a superior effectiveness of its colouring, excels the subject of this note. A specimen here commenced to flower during the latter part of January, and much of its beauty still remained in the first week of March. The longest of the dozen or so spikes was twenty-two inches. Its flowers might be described by some as pale orange inside and salmon outside, but, I think, apricot more correctly describes the lovely dual tones of the blooms. I do not think it too much to state that were a batch of such plants taken to a meeting of the Royal Horticultural Society at Vincent Square, they would command unstinted praise, and be in great demand. The genuine beauty and long-lasting quality of the flowers of this Mexican plant make it all the more difficult to understand why such scant attention has been paid to the greenhouse section of this family for, among other works examined, even Thompson's *Gardeners' Assistant* only gives the names of half-a-dozen or so sorts, and no mention at all of their high decorative value beyond, "They are worth growing in pots for the conservatory."

When the flowering of this species is over, its propagation may be attended to by dividing the roots, and by severing the off-shoots and rooting them as cuttings in a very sandy mixture in gentle heat. The stock may also be increased from seed. In future potting or panning of the plants a fair sprinkling of mortar rubble and small crocks should be used in the compost. *C. Turner, Ampthill.*

FREESIAS.

Messrs. Sutton and Sons' collection of hybrid Freesias at the Royal Horticultural Society's meeting on the 8th and 9th inst, was outstandingly good. These new hybrids will not, perhaps, submit to forcing so much as the older Freesia refracta and Freesia refracta alba, but the flowers are very beautiful, and with care the plants may be grown by any amateur in a cool greenhouse from which frost can be excluded.

The corms may be potted from the end of July to early October. It should be remembered that the roots are very brittle and bruise readily. About six corms should be placed in a 5-inch pot and the pots should then be sunk in the open under ashes until the beginning of November, when they may be placed in cold frames and exposed to the sunshine.

When the plants are brought into a greenhouse the temperature should not be allowed to exceed 50°, and it must be remembered that sunshine is of far greater importance than heat. The pots should be stood in saucers of water when the flower spikes show, and the plants should be fed with weak liquid manure as soon as the flower buds commence to open. Freesias last a long time when cut and placed in water.

The most suitable soil to use is a mixture of sandy loam and decayed manure with a little bone meal added. Efficient drainage is of great importance. After the flowering is finished the plants should be stood on a greenhouse shelf exposed to full sunshine and the foliage allowed to die down gradually; the bulbs should be thoroughly baked before lifting them for cleaning and repotting.

The most important points in connection with the cultivation of Freesias are to supply plenty of moisture during the period of growth, never to force the plants too hard, and lastly, to ripen the bulbs very thoroughly after flowering is over.

Amongst the newer hybrids shown at Vincent Square, I noticed the following: Treasure, which has very large, soft lemon flowers with deeper shadings of gold; Buttercup, golden yellow with an orange blotch on each bloom; Bluebeard, pale mauve suffused with yellow and deeper mauve; Gold Coin, rich gold with orange markings; Heavenly Blue which, as shown, was lilac in colour rather than blue; Apple Blossom, bright pink with white centre, and Apotheose, which has very large flowers of a soft lilac mauve, flushed and edged with carmine. *Robert W. Ascroft, The Flower Cottage, East Molesey.*

ANNUALS FOR GREENHOUSE AND CONSERVATORY DECORATION.

CALLISTEPHUS CHINENSIS; THE CHINA ASTER.

The various strains and varieties of this popular half-hardy annual are generally grown for flowering out-of-doors, but they are very useful during the autumn for furnishing the greenhouse. For this purpose it is usual to lift plants from the open ground just as they are coming into flower, and when this is done they should have a good soaking at the roots the day before they are lifted. They then move readily, but when potted they should be kept close and shaded in a cold frame for a few days until they become re-established. For this purpose Asters should be grown in the reserve garden; seeds should be sown towards the end of March and in early April, giving the same treatment as for other half-hardy annuals. In the younger stages crowding and overwatering must be guarded against, as, in common with some other plants of this class, they are very apt to suffer from "black stem," a disease generally regarded as due to attacks of Botrytis, a fungus which, in several forms, attacks many garden plants. In southern gardens aphides often attack the young seedlings, but are easily destroyed by spraying with a nicotine insecticide.

There are many varieties of Asters both single and double, all useful for pot culture, although the dwarfer kinds are generally preferred for this purpose.

CENTAUREAS.

The genus Centaurea includes several beautiful hardy annuals. C. Cyanus, the Cornflower, is one of our best blue-flowered annuals, and there are both white and rose coloured varieties. Seeds should be sown about the middle of September, and the seedlings given the same treatment as generally advised for this class of plants. Grown on into six-inch pots they make fine large specimens.

Centaurea moschata, the Sweet Purple Sultan; and C suaveolens, the Sweet Yellow Sultan, of which there are white, purple and heliotrope coloured varieties, are very popular for supplies of cut flowers. Even in the open their cultivation is not always attended with success, while successful cultivation in pots is as difficult. They are best raised from seeds sown towards the end of January, and as the seedlings do not transplant readily the seeds are best sown directly into sixty-sized pots, afterwards thinning them to three or four in a pot and potting them on as they require it. Good examples should be flowered in six-inch pots. Watering must be carefully done at all times; and I would advise the use of old mortar rubble in the potting compost, as I believe lime is important in the successful cultivation of Sweet Sultans, for they seem to be happiest in a calcareous soil. They should be grown perfectly cool in an airy greenhouse, and should be kept neatly staked and tied.

CHRYSANTHEMUMS.

Chrysanthemums include several species of hardy annuals, viz., C. carinatum, with single flowers, of which there are several varieties growing about two-and-a-half feet in height; C. coronarium, about eighteen inches high, with white and yellow double flowers; and C. segetum, two varieties of which, Evening Star and Morning Star, are very useful for pot culture. All are easily grown in any good potting compost. Seeds may be sown during September and January, and again towards the end of June for autumn flowering, for which purpose I have found the taller growing varieties very useful: if four plants are placed in a single pot and grown on into eight-inch pots they make fine specimens for standing on the ground. They are also useful for cutting. *J. Coutts.*

HARDY CYCLAMEN.

Cyclamen Coum is now in flower. The true colour of the type is deep carmine, but there is a great variation of shade, and the light pink-coloured and whitish flowers are much more common than those of deep hue. In our garden here the type is often eliminated by its varieties and it is necessary to plant it in another part of the garden to keep it true. The seeds are carried far by ants, thanks to the syrup with which they are coated. I have observed these little pests carrying the relatively heavy seeds for ten metres. Cyclamen repandum is not hardy with us at Geneva, but, if covered with moss or Spruce branches, it resists our winters. This Cyclamen is abundant in South Italy but, alas, how difficult to get it true! A friend of mine, who stayed at Rome, wrote offering me several thousands of the true C. repandum which had been offered him by a clever gardener of that city. I paid for them and received the seeds in due course, but there was not one seed of C. repandum; all were of the common C. hederaefolium which grows in Switzerland in two different places and is found in Savoy in certain districts, sometimes mixed with C. europaeum.

Cyclamen balearicum is a very rare species and sweetly fragrant; it flowers in May and produces white flowers. It grows not only in the Balearic Isles but also in a few places in the south of France. Several years ago I obtained the rarest species of all, C. Rohlfsanum. It was in 1917, during the war period, and the corms remained at the frontier for three months, so that when I received them they were all rotten. They were enormous corms, much larger than those of any other species, even those of C. hederaefolium. An Italian botanist who at that time was staying as a soldier in Bengasi, went into the Cyrenaic desert to get the corms, and after two days found them in a little oasis where the rocks emerged from the sand level, and in the deep fissures containing old, black leaf mould he found the plants growing. In 1919 I obtained seeds of this Cyclamen, and the very few plants I raised have not yet flowered. But the leaves are very interesting; Hildebrand gives a drawing of them in his Monograph (*Die Gattung Cyclamen*, Plate VI). The foliage is deeply and irregularly cut into variously shaped lobes and the nerves are very prominent. The flowers are deep carmine coloured, appear in autumn, and are sweet smelling. In C. Rohlfsanum the anthers are long and placed against the style, forming a dense yellow spike which prolongs the flower, as in Dodecatheon. Hildebrand states that this plant has only been cultivated once, *i.e.*, in Boissier's Garden at Valleyres (Vaud), by Mr. W. Barbey. We hope, however, to flower it here. *H. Correvon, Floraire, Geneva.*

MARKET FRUIT GARDEN.

Save for a few days of mild weather, March was unusually cold The month both came in and went out like a lion. Cold winds from the north and east were a persistent feature. The rainfall amounted to 1.65 inch, which is well below the average. According to my records of the state of vegetation each year this is a very late spring. Judging from the date of blooming of Myrobolan Plum, the earliest Daffodils, the yellow Crocus and the wild Primroses, it is at least a month later than the spring of last year, and quite as backward as that of 1922. In the circumstances it appears wonderful that fruit trees should move at all, but it seems that their buds cannot remain dormant indefinitely, no matter how low the temperature may be. It was not until the end of the month, however, that the fruit buds of Pears and the earliest-blooming Plums and Apples showed at all prominently, and they were still a long way from opening. Last year several varieties of Plums bloomed during March, whilst Red and Black Currants and Gooseberries showed their buds.

So far as hardy fruits are concerned the late season is all to the good, but one would like to see a change to milder conditions now. When it comes there should be a good chance of the weather remaining kindly, in which case the blooming period will be got over quickly, and insect pests will have less opportunity to do harm than they do in a season when the bloom hangs about in a half developed state.

In my case the late spring is a blessing because it has allowed me to overtake arrears of work caused by the wet autumn. Planting has been concluded under good conditions, and pruning, which was decidedly behind, will now be finished before the buds get too far advanced, and before it becomes necessary to divert the labour to spraying.

Spring Cultivation.

This year I made a great point of starting cultivation early. Very often the land has been allowed to become too hard and dry. The whole of the ground has been cultivated once, and some of it twice. This will let the air into the soil and make subsequent work easier. A cultivator with chisel-pointed tines again proved the best of the horse-drawn implements, though a spring-tined cultivator also did some good work where the ground was not too hard. Where there was not space for the horses to work the Simar rotary motor tiller gave the usual excellent result. This machine is nearing the end of its life, but it is so useful that I shall feel obliged to replace it in spite of the heavy outlay.

A very good job has been made of a plantation of Black Currants which had been somewhat denuded of soil by last season's hoeing. In many cases the roots around the collar of the bush were showing on the surface, which is very bad for this subject. A double-breasted plough drew a shallow furrow midway between the rows, and the soil thrown out on each side was drawn up to the bushes with hoes and shovels. The cultivator followed to break up the alleys.

Poultry Under Trees.

I do not like the look of an orchard in which a neighbour is trying fowls and ducks. Eggs are coming in well, but the ground is trodden down as if a steam roller had been over it. The grass is kept down to some extent, but there is no doubt that it will have to be mown once during the summer; and the trampling of the birds will make this a difficult task. I am aware that some growers report well the results secured by running poultry in orchards; but it remains to be seen how the trees will withstand drought with the ground beneath them trampled hard.

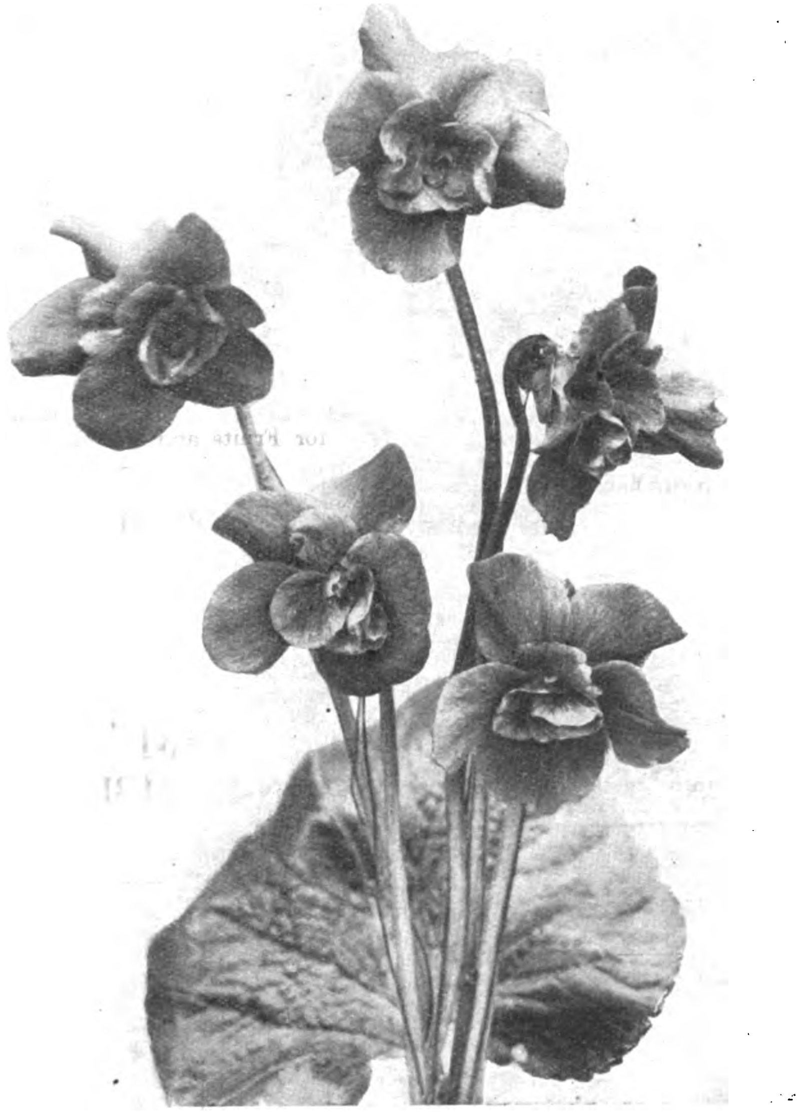

FIG. 96.—VIOLET PRINCESS MARY; R.H.S. AWARD OF MERIT, APRIL 8 (SEE P. 212).

Spraying Plums.

Plums will be ready for spraying as soon as the weather becomes favourable. The stem-mothers of the leaf-curling aphis could be found on them several weeks ago; now they are waiting on the outsides of the buds. It looks almost as if we might have a repetition of last year's bad attack of this troublesome pest. I shall spray with nicotine and soft soap, which will certainly kill all that are touched by the wash. Ammonium polysulphide will be added as an experiment to see whether it will do anything against brown rot. Although dead wood has been cut out so far as possible there are plenty of small portions showing pustules of the disease, and it is against these that the fungicide will be used. I choose ammonium polysulphide because it is the only fungicide which can be mixed with a soapy wash, and I dare not omit soap because of its help to the nicotine in killing aphides. The difficulty with the winter stage of brown rot is to wet thoroughly the downy pustules, which throw off the moisture. The East Malling Research station recommends for the purpose a wash of 1 lb. caustic soda and 1 lb. soft soap to 10 gallons of water. The soap is intended to wet the pustules thoroughly, and the caustic soda to burn them of. This wash, of course, must be used whilst the buds are dormant, say in February or in early March. If used as late as one dares it should kill the stem-mother aphides. It will certainly be worth a trial another year.

Apple Scab.

One of the reasons why it is difficult to compete with imported Apples is that the latter are generally quite free from scab. Home growers are often blamed for not growing their fruit equally clean. In a favourable season they can do so; but our measures for preventing scab, which are exactly the same as those of our overseas competitors, are only partially successful in a wet season. The best of the boxed Apples that arrive in this country come from arid regions where the climate makes the control of scab much easier than it is in this country. As a proof that it is a matter of climate and not of method comes the news that Tasmania is shipping to us this year 450,000 cases of Apples, of which practically 100 per cent are disfigured by scab. The season has been so unfavourable, and the growers are so hard hit, that the export regulations have been relaxed to allow of the shipment of this fruit. As a rule no fruit showing more than 30 per cent. blemish from scab is accepted for export. In this country seasons which favour scab and make its complete control impossible, are all too frequent. However, the grower who applies the usual preventives every year always has a larger proportion of clean fruit than the grower who neglects these precautions.

Black Currants.

W. T. (p. 166), is quite correct in saying that Baldwin has proved much the heaviest cropper of all varieties of Black Currants at East Malling, but I think that he is the first person I have known to doubt its being more susceptible than other varieties to bud mite. From my point of view there are other objections to it. It is a weak grower, and my land, which is not really Black Currant land at all, needs strong growers. Then the fruit is small and late. Boskoop Giant crops very much better with me than it does at East Malling, and the fruit is large and early. The choice of varieties is no doubt much influenced by locality. The Norfolk growers, for instance, who get the finest crops, mostly grow the French type, including, of course, Seabrook's Black. The wisest plan is probably to grow all four types, because one may do well in a season when others fail. In some years, for instance, I have had a heavy crop of Victoria, which in other seasons gives very poor results.

I do not agree that cross-fertilisation is necessary. What is required is self-fertilisation by insects, because, in the bloom of all varieties except Baldwin, the pistil extends beyond the anthers, and the sticky pollen does not reach the former unless carried there by insects. Hence the "running off" in many varieties and the free setting of Baldwin. Insect fertilisation depends largely on conditions at blooming time, whether or not they favour the flight and work of insects. The shelter afforded to insects by close planting is said to be one reason why this encourages heavy cropping.

I now have on my place Boskoop Giant, Seabrook's Black, French Black, and an unnamed variety, evidently of the Victoria type, supplied to me by a reader of this journal in Scotland; and my next-door neighbour has some Baldwins. In a few years time, therefore, I hope to learn more about the performance of the different types. What I want more than anything is resistance to reversion, for on this, more than anything else, depends the success of Black Currant growing at the present time. *Market Grower.*

SOIL IMPROVEMENT.

COAL ASHES FOR HEAVY LAND.

For many years I have used coal ashes in the kitchen garden and fruit plantations, for I find they give good results on our soil, which is very shallow, and consists of a heavy loam resting on a heavy iron clay. In some places it is impossible to work the land with a graft and it is necessary to use a pickaxe to move the second spit. When this is done I use all the coal ashes available to mix with the second spit; the ashes keep the texture of the soil open and make the ground work much better next time it is moved, whilst they are not detrimental to the surface soil if it is inclined to be heavy. After a few years working it is remarkable how well plants grow in land that has been thus lightened with the usual treatment of manuring and liming. I use the coal ashes largely for fruit trees where the soil is inclined to be heavy, and if half decayed leaves are mixed with the ashes, it is surprising how the fibrous roots grow into it; the ashes are very lasting and keep the soil open after the leaves are exhausted. In many large establishments the ash bin from the mansion is emptied at the garden; these ashes are not quite so coarse, but may be used in the same way as the above, or mixed together with leaves. These need to be screened and the cinders used for the stokehole fires in the spring or early autumn, when only a small fire is necessary, thus economising the coal.

In many places the ashes are used for path making, but I do not consider they are suitable for the purpose, as they soon work into a dirty condition and always pick up after a sharp frost if walked upon. If the paths are on the incline the ashes disappear down the drains after heavy rains. Clinkers are more suitable for path-making; they may be broken to the size required and they last much longer than ashes.

LIME FOR HEAVY SOIL.

The soil in this district is, in places, very heavy, especially where it rests on the iron clay. I find such land requires double the lime that ordinary soil does to make it at all workable or effective, especially where the ground has not been under cultivation. When bringing ground of this heavy nature into cultivation I have used as much as two bushels of lime to the rod, and after a few years this amount seems to disappear, as the ground is trenched two feet deep. The next time the ground is trenched I use lime very liberally with all the opening material I can collect and the combination of such material and lime helps to make the ground more workable.

The clay in these gardens runs in veins, sometimes wide and deep, and joining this clay soil there is a vein of sandy loam resting on clay. For such ground chalk is more suitable than lime owing to its slow action and it does not disappear so quickly. Moreover, it does not require so heavy a dressing of chalk as of lime. The same applies to our medium loam where the vein of iron-stone appears. This soil is shallow, owing to stone being near the surface. As a rule not enough lime is used on heavy soils simply because the lime kilnes are a long distance away, making it an expensive dressing by the time it reaches its destination. The cheapest way is to have it drawn straight from the kiln by a lorry; the cost of transit is less and not so much of the material is wasted as when sent by rail. *E. Neal, Tilgate Gardens, Crawley.*

FRUIT REGISTER.

LITTLE KNOWN APPLES OF GOOD QUALITY.

Tibberton Codlin or Cow Apple is a Gloucestershire-raised variety and was introduced by the late Mr. Walter Hume of Cheltenham. The fruits are of medium size, conical, yellow, flushed red, with russety patches. This Apple is a splendid cooker, and not to be despised for dessert, towards the month of March.

Vicar of Beighton is a large, handsome culinary Apple of late keeping qualities. The colour is deep bright crimson, and the skin is mottled and striped with yellow. It is in season until May and is a useful acquisition.

Herring's Pippin is a useful dessert Apple in September and October. The flesh is yellow, crisp, and sweet, with a pleasant aroma. It is a handsome fruit, the colouration being intense and well-marked. It is one of the best Apples for cultivating in pots, and a pot specimen is a very ornamental subject.

In Monarch, I consider we have one of the best late Apples in cultivation, the large size of the fruit being a great advantage for culinary purposes; this fine Apple is bound to be planted extensively in the future. The tree is very quick in coming into bearing, and as a market Apple will be much in request. The contour of the fruit is round, making the variety suitable for close packing. The colour is pale yellow, with a bright red flush, faintly striped with red. The tree is vigorous of growth, making it useful for all systems of training. *Pomona.*

THE GROWING OF CUCUMBERS IN FRAMES.

The most economical method of obtaining a constant supply of Cucumbers from now onwards through the summer is to grow the plants in frames over a hotbed. The best materials for the making of the hotbed are Oak or Beech leaves and stable manure in about equal proportions; later in the season almost anything having a vegetable basis will do to mix in the heap, including grass mowings from lawns. For earlier hotbeds, however, leaves and stable manure only should be used. Mix the dung and leaves together in a large heap, for the hotbed at this season must not be stinted in material. Assuming that equal parts of leaves and manure have been fermented and turned on two or three occasions, the beds may be made forthwith. If manure largely predominates in the heap, extra turning is necessary to allow the gases of fermentation to pass away; the free use of leaves neutralises the tendency to rapid fermentation and absorbs any noxious gases which may develop from the manure.

Set out the positions of the beds by driving a stake at each corner; the bed should be two feet longer and wider than the frames, so that there will be a margin of one foot all around it. For Cucumbers at this season, the bed should be not less than 4 feet to 4½ feet high at the back and 3½ feet to 4 feet at the front. Place the materials in layers one foot or so thick, giving the requisite pressure by treading as the work proceeds; if a bed is put together loosely the fermentation will be rapid and soon exhausted. On the contrary, if the bed is trampled too hard, air, which is the main source of fermentation, is unable to enter and the heat will develop slowly and perhaps never be sufficient to do useful work. Give just enough pressure to prevent rapid and unequal settlement of the materials after the bed has commenced to furnish warmth. Bury a thermometer in the bed and when the heat is steady at about 85° soil may be placed on the surface and the plants set out when the soil has become well warmed. When the drops of water which condense on the inside of the frame are colourless, it may be taken as a guide that it is safe for the plants to be inserted.

If the beds are made in April seeds of Cucumbers and Melons may be sown singly in 3-inch pots the day the beds are formed, and if all goes well the young plants will be fit for planting by the time the heat of the bed is suitable. Place turf grass side downwards along the bed near the back of the frame, forming a foundation for the soil about 30 inches wide. The compost should consist of good turfy loam and lime rubble; manure and leaf mould are not required as the roots may be fed with a stimulant when the plants actually require it. The soil should form a narrow ridge running the whole length of the frame and one or two plants should be set to each light 6 feet in width. The hill or ridge of soil being narrow the young plants will soon push their roots through the sides of it, when more soil that has been previously placed along the back and front of the frame for the two-fold purpose of keeping down steam and warming it, should be placed firmly against the roots as often as they creep to the surface. In the early stages the heat will fluctuate more or less, but the soft, moist heat economises syringing, whilst the covering of the frame at night with dry mats will ensure an atmosphere in which the plants will revel. Train the main vines outward, pinch them before they reach the sides of the frame, and stop the laterals at the first joint beyond the fruit. Increase the supply of tepid water as the season advances and the plants gain strength. Ventilate the frame early on bright mornings and close it sufficiently early after noon to ensure the sun's heat raising the temperature to 90°. If linings are applied to the frames the beds [will hardly require rebuilding; if the heat fluctuates much it may be necessary to turn and regulate the linings at the back and front of the frame occasionally. Guard against overcrowding of the growths and stop and regulate the shoots as it becomes necessary. Thin the fruits freely if extra fine specimens are required. *F. Jordan.*

HOME CORRESPONDENCE.

Puschkinia scillioides.—I was pleased to read the appreciative note on this attractive little bulb on p. 185. It is, so far as I know, quite hardy in light soil, but it suffers greatly from the attacks of slugs, especially when it is just emerging from the soil in spring. P. libanotica is referred to P. scillioides, of which it seems only a variety, with finer flowers and more robust growth. P. scillioides compacta is frequently sold as P. libanotica compacta, and is, in my opinion, a form of that variety. At one time I was impressed by it, but lapse of years has changed my view and to me it now looks heavy and ungraceful compared with the typical form. But I hope that the note by *J.* may bring this charming little flower a number of admirers. *S. Arnott.*

Snowdrops.—From the recent notes in the *Gardeners' Chronicle*, and from letters which have reached me from various correspondents there would appear to be a renewed interest in the Snowdrop in its various aspects, and the interesting article by *Formakin*, together with the remarks upon it cannot fail to stimulate the desire to know more about this "early herald of the infant year." For a number of years I have been interested in the Snowdrop and have always taken an opportunity where such offered of seeing it where it had been established for many years. From what I have observed I have not the slightest hesitation in concluding that the increase in most of these places is due to self-seeding. In many of these places a close examination of the flowers will show a considerable difference between individul groups, due, I believe, to these having sprung from a self-sown parent, which differed in respect of size, etc., from its neighbours. Then the vast multitudes of Snowdrops to be seen in some estates are so great and so widespread that it is impossible to reconcile them with mere increase at the roots. Even the lapse of centuries would hardly account for such increase of the Snowdrops. I had once an opportunity of selecting several forms of Galanthus nivalis from a woodland where the flower had been established for a long number of years, though not so long as would justify the opinion that they were as ancient as those at Monreith or St. Mary's Isle, and it is impossible to resist the conclusion that these were self-sown forms, so distinct were they from the normal Snowdrops of the place. This year my own Snowdrops are seeding fairly well although it is only since the very end of March that any bees were seen in the garden, and this was when most of the Snowdrops were over. I have raised a few Snowdrops from seeds from my own plants, although I have no reason to be proud of any of the progeny. I quite agree with Mr. Parkin (p. 185) in his remarks regarding the time it takes seedling Snowdrops to flower. His experience in this respect seems the same as my own, with the exception that some seedlings are rather longer in coming into bloom than others. G. nivalis is much more variable than many suppose, and I am confident that most of the forms, except a very few, have been derived from self-sown seeds. I have seen Snowdrops affected by Botrytis galanthina in a semi-wild place and also in one of my former gardens. *S. Arnott.*

Romneyas.—I was greaty interested in your correspondent's (H. Correvon's) article on page 188, on "Romneyas," and must thank him for defining so clearly the differences between R. Coulteri and R. trichocalyx. If the distinct characteristics of the latter always hold good, viz., its habit of spreading by underground stems to great distances, and throwing up therefrom large quantities of growths or suckers; also if, as your correspondent states, the blooms have no scent, or at least a very different odour, and the stamens are yellow instead of orange, there should be no difficulty in anyone recognising these two species which even Mr. W. J. Bean admits are hardly distinguishable in leaf and stem (*Trees and Shrubs Hardy in the British Isles*, vol. ii., page 415). Romneya Coulteri has long been established here and thrives remarkably well on a sheltered south border, its summer growths reaching up to eight feet high, and when covered with its large, sweetly-scented flowers, it is an object of great interest to our many visitors during August. Your correspondent asks "how can the plant be increased?", and indeed this is very simple when you know. The underground roots, if cut up into pieces about two inches long, and placed in pans or boxes of leafy soil, soon develop a crown after the manner of Anchusa, or Seakale, and when started may be transferred to separate pots and grown on until they are large enough to transfer to their permanent quarters. They resent disturbance at the roots and must be kept in suitable sized pots, and planted in the part in which they are intended to remain. It is a long cry from Geneva to Ayrshire, and no doubt it will be of interest to many to find R. Coulteri thriving in both of these widely separated districts. *Alfred T. Harrison, Culzean Castle Gardens, by Maybole, Ayrshire.*

Young Lads and Horticulture.—The average weekly wage offered for highly skilled gardeners is 38s., and, generally, applicants for a situation are required to perform other duties not appertaining to the gardening profession. The low wages offered are, in my opinion, the one disadvantage in inducing ambitious lads to take up the profession. One of your correspondents refers to the need for scholarships in horticulture, but the fees, expenses, &c., are prohibitive to the ordinary working-man's son. The remuneration offered to gardeners is not sufficient to attract lads to serve their time and undertake courses in horticulture; they know that on reaching maturity the wages they would receive in return for their study and efficiency could be easily earned by an average labourer. "*Dunelmian.*"

——I am surprised to see that your correspondents attach so much importance to scientific training in horticulture. Of what use is such training? I would like to cite my own experience. Last year I completed a very thorough course of study in the principles and practice of horticulture; I worked hard and passed an examination or two, including the N.D.H. Preliminary. Then I tried to find a situation. If I applied for a research appointment, I was informed that a scientist was required; if for a post as instructor or in commercial work, I was told that a man of practical experience was wanted. Apparently neither description is applicable to myself. What was I to do? The only feasible course seemed to be that I should start at the bottom as a labourer; I did so, and am still a labourer. I don't mind it; I do my best and am, I believe, tolerably efficient. But I do regret my scientific training—the expenditure of three years of my life and a certain amount of my father's money, which, it seems, is going to prove of little use to me in my career, but rather will be the grounds of a distinct prejudice against me. I recommend Mr. Dufton, and all such as he, to continue to be purely practical men; they will, I believe, find that the quickest road to promotion. *Disillusioned.*

SOCIETIES.

NATIONAL ROSE.

THE Spring Rose Show of the National Rose Society was held in the R.H.S. Hall, Vincent Square, Westminster, on Friday, the 11th inst., and although the weather was distinctly wet and cold, there was, nevertheless, a large attendance, and throughout the day the Hall was well filled with Rose enthusiasts. The season has been very bad for Roses under glass and consequently many of the classes were poorly represented. One Gold Medal and one Certificate of Merit were awarded to new varieties.

GOLD MEDAL.

Rose America.—This variety has been in commerce for the past year or two and is proving to be a very popular commercial flower for forcing under glass. The blooms are large and full, fragrant and of a rich shade of pink, a tone which has proved highly attractive under artificial light. The plant is of strong growth, a free flowerer, and may be recommended for garden decoration. The variety was raised by Mr. E. J. HILL in the United States, last year, when shown by Mr. E. J. HICKS, it received an Award of Merit from the R.H.S. Shown by Messrs. G. BECKWITH AND SONS, Hoddesdon, Herts.

CERTIFICATE OF MERIT.

Rose Clovelly.—A hybrid-tea variety of clear, pale pink colour. The growth is very strong and the blooms are produced on long, firm stems. In the bud the flowers are long and pointed, and when fully developed their form is full and exquisitely shaped. Shown by Mr. E. J. HICKS, Hurst, Berks.

OTHER NOVELTIES.

Other novelties entered were Annie Laurie, raised by the Stuppy Floral Co., St. Joseph, U.S.A. and shown by Messrs. G. BECKWITH AND SONS. It is a sport from Madame Butterfly, but much paler in colour, and the outer petals, with age, become a dingy buff shade. The flower is very full, slightly fragrant, and of good form.

Fairy Queen, a Wichuraiana variety with white flowers measuring fully three inches across was shown by Mr. W. E. CHAPLIN, Waltham Cross. In the bud stage the colour is rich apricot, developing to pure white as the flower ages. The same firm also entered Pearl White, a H.T. variety with white, well-shaped flowers, but lacking in fullness. Messrs. G. BECKWITH AND SONS also showed the varieties Mrs. Beckwith, raised by J. Pernet Ducher, Rhone, France; the flowers are highly fragrant and creamy-white; Souvenir de H. A. Verschuren, a good flower of a colour slightly brighter than Lady Hillingdon; and Elsie Beckwith, a finely shaped flower, slightly brighter in colour than America. Mr. E. J. HICKS also showed America in fine condition.

NURSERYMEN'S CLASSES.

In the class for a group of Roses placed on the floor in a space not exceeding one hundred and fifty square feet, Messrs. A. J. and C. ALLEN, Norwich, were deservedly awarded the first prize for a highly decorative exhibit. The centre was occupied with large, beautifully trained and well-flowered specimens of Rambler Roses, including Sodenia, a deep-pink double flower, Lady Godiva, Romeo, deep red; Albertine, a Wichuraiana variety, with large flesh-pink flowers and Paul's Scarlet Climber. Towards the front were magnificent standard specimens of Lady Hillingdon, Hadley, Golden Ophelia, and America, while the groundwork consisted mainly of Polyantha varieties, of which La Reine Elizabeth, scarlet; Verdun, deep rose-pink; and Eblouissant, with large trusses of bright red flowers are a selection. The other competitor, Mr. W. E. CHAPLIN, Waltham Cross, was placed second with an exhibit of finely grown plants. The groundwork consisted of pot specimens of hybrid Tea varieties, relieved here and there with standard specimens, while the centre consisted of a column of climbing sorts. Included among the many varieties were Mrs. Tresham Gilbey, pale salmon-pink; Hoosier Beauty, crimson; Souvenir de Madame Boullet, cream slightly flushed with pale flesh-pink; William Bowyer, deep crimson, King Edward VII, a Polyantha variety with blush flowers and Fairy Queen, a new Wichuraiana variety with large white flowers.

Of the three exhibitors in the class for a table group of cut Roses arranged in a space not exceeding twenty feet by three feet, Messrs. B. R. Cant and Sons, Colchester, won the premier award for a group of high quality blooms, including the new Pernetiana variety Sovereign, deep yellow; Covent Garden, a good deep crimson variety; Padre, coppery-scarlet; Phoebe, a charming cream-white flower; Golden Ophelia and Constance Casson, rich carmine. The second prize went to Mr. Elisha J. Hicks, Hurst, Berks., who also had a magnificent group in which were fine epergnes of Climbing Lady Hillingdon, Mrs. Elisha Hicks, pale blush; America, rose-pink; Ophelia, Queen of the Belgians, a large semi-double pink flower; and Coral Cluster, a beautiful Polyantha variety. Mr. G. Prince, Oxford, was awarded the third prize; he showed excellent specimens of Climbing Richmond, K. of K., the new Allan Chandler, semi-double scarlet flower, and Seagull, a white climbing variety.

In the class for a group of Polyantha varieties, arranged on the floor in a space not exceeding fifty square feet, Rev. J. H. Pemberton, Havering-atte-Bower, was placed first with a charming group, which included Koster's Orleans, a fiery crimson flower; Echo, with large pink blooms; White Echo, Ellen Poulsen, deep pink; and Juliana, pale salmon. Mr. Elisha J. Hicks, was second with good specimens of Edith Cavell, crimson, and its sport Lady Reading, of deeper colour; Ellen Poulsen, White Orleans, and Baby Tausendschon.

Mr. W. E. Chaplin was the sole competitor in the class for six pillar Roses in not fewer than four varieties, and showed excellent specimens of Royal Scarlet, a new variety with semi-double scarlet flowers; Emily Gray, apricot-yellow; The Beacon, a large single flower of bright scarlet colour; Tausendschon, and Paul's Scarlet Climber.

The class for twenty-four exhibition blooms in not fewer than eighteen varieties attracted two competitors, the first prize being gained by Messrs B. R. Cant and Sons. The blooms were of outstanding quality and included Lady Roundhay, a Pernetiana variety of coppery yellow colour; Constance Casson, apricot red; Padre, coppery scarlet; Juliet, Mabel Drew, Golden Ophelia, Phoebe, cream white; Sovereign, Covent Garden, Rev. Page Roberts and Esme. Mr. Elisha J Hicks was second with good flowers of Gladys Holland, buff; Geo. Dickson, Frau Karl Druschki, Premier, and a magnificent specimen of Ulrich Brunner, which was awarded the Society's Silver-Gilt Medal as the best bloom in the Nurserymen's Classes.

In a similar class for twelve blooms, one variety only, Mr. A. T. Goodwin, Maidstone, led with a perfect dozen flowers of Maréchal Niel; Mr. E. J. Hicks was second with America, and Messrs. B. R. Cant and Sons third with Constance Casson.

For two baskets of cut Roses, two distinct varieties, Mr. E. J. Hicks, the only competitor in this class, gained first prize with the varieties Lady Hillingdon and Evelyn, a pale pink flower; while for a single basket of blooms, one variety, Mr. A. T. Goodwin, Maidstone, was easily first with Maréchal Niel.

Mr. E. J. Hicks was the only exhibitor in the classes for a basket of twelve blooms also in that for six blooms of new varieties and was awarded the first prize in both classes; in the latter class he showed the varieties Courtney Page, scarlet cerise; Mrs. Beckworth, cream; Evelyn Marland, salmon; America, Mrs. H. Winnett and Hawlmark Scarlet.

Amateur Classes.

For a group of cut Roses arranged on a table space not exceeding five feet by three feet, the only competitor was Mr. G. A. Hammond, Burgess Hill, who showed excellent vases of Richmond, Avoca, Ophelia, Mrs. H. Morse, Mrs. Herbert Stevens, Frau Karl Druschki and a basket of mixed varieties. Mr. E. J. Holland, Sutton, Surrey, had a magnificent show of blooms in the class for twelve blooms in not fewer than six varieties; outstanding flowers were Mrs. J. H. Welch, rose-pink, which was awarded the Society's Silver-gilt Medal as the best bloom in the amateur classes; Hadley, Modesty, cream-tinted rose; Candeur Lyonaise, white; W. Shean, pink, and Gorgeous, full orange-yellow.

Mr. G. A. Hammond secured first prize in the class for six blooms of one variety and showed large, finely shaped flowers of Mrs. Foley Hobbs; the second prize went to Mr. H. Oppenheimer, Caterham, who displayed the variety Maréchal Niel. There was only one entry in the class for six blooms, not fewer than four varieties, the first prize being awarded to Mr. L. P. Roberts, Dorking, whose specimens included Yvonne Vacherot, pale cream-pink; Augustus Hartmann, red, and Dean Hole. Likewise in the class for a basket of cut flowers there was but one exhibitor—Mr. G. A. Hammond—who received the first prize for good blooms of G. Amedee Hammond, apricot, shading to fawn. For a basket of mixed varieties Mr. E. J. Holland gained the premier award with a basket in which pink varieties predominated. Mr. H. A. Darlington, Potters Bar, was second, and Mr. G. Marriot, Carlton, Nottingham, third. The last-named competitor was first for a basket containing twelve blooms, followed by Mr. J. N. Hart, Potters Bar.

Artistic Section.

In the Artistic Section devoted to nurserymen, the class for a dinner table decoration attracted five entrants, and so keen was the competition that the arrangements from Mrs. H. May, Waltham Cross, and Mrs. F. A. Bide, Farnham, were placed equal firsts. Both exhibitors used the variety Madame Butterfly with exceptionally good effect. The second prize went to Mrs. E. Paul, Cheshunt, who also employed the above-mentioned variety, and Mrs. Tisdall, Woodford Green, was placed third.

For a bowl of cut Roses arranged with their own foliage, Mrs. A. R. Bide took the first place with the variety Pilgrim, a rose-pink flower; Mrs. Tisdall was second with Madame Butterfly, and Mrs. E. Paul third.

In similar classes for amateur competitors only, there were five contestants in the dinner table class, and Mrs. Courtney Page, Enfield, was awarded chief honours with a neat arrangement of Madame Butterfly. Miss. E. Griffith, Finchley, was second, and employed Golden Ophelia; and Mrs. Charlton, Yiewsley, and Mrs. Oakley Fisher, Sudbury, Harrow, were adjudged equal third. For a bowl of cut Roses Mrs. Courtney Page gained first prize with Madame Butterfly, and Miss M. E. West and Miss E. Griffith were second and third respectively, both exhibitors employing the variety Richmond. There were five competitors in the class for a vase of Roses, and Miss M. E. West was placed first for a large vase of Richmond. Miss Ethel Jones was second, and Mrs. Courtney Page third.

INSTOW SPRING FLOWER SHOW.

A delightful and interesting exhibition of spring flowers was held at the Rifle Hall, Instow, North Devon, on the 3rd inst. An annual exhibition has been held since 1922, when Miss K. M. Hinchliff, of Worlington House, Instow, conceived the idea of holding an exhibition of spring flowers without all the expense, work, worry and local jealousy that generally attends an exhibition in small places where judging is carried out and prizes awarded. At Instow there is no show committee, no judging, no prizes and no entrance fees, and the success of this method of holding a show suggests that it might be copied in numerous districts throughout the country. Each exhibitor shows whatever he or she is able. Sometimes a considerable group of flowers is arranged, sometimes only one or two vases of flowers, and from an artistic point of view the effect thus produced is far better than the usual stiff rows of single blooms or vases of three or five flowers. Moreover, instead of one person putting up the same variety in class after class, it is put up once for all in his particular group. Everyone exhibits his best and inspects all the other exhibits with the comfortable feeling that no one has pronounced his to be second and somebody else's first.

On this occasion the Daffodils were the best yet shown at Instow, although the very late season made it impossble to exhibit Poeticus varieties and the late white trumpets. Fortunately, however, the general level of excellence rises year by year. A forty-two feet run of three-tier staging was covered with groups ranging from fifty-two varieties shown by Miss Hinchliff, and thirty-nine varieties shown by Mr. R. Seymour Cobley, down to a modest three varieties. Miss Hinchliff's display included fine examples of Outpost, Sir Watkin, Southern Star, Golden Rose, King Alfred, Weardale Perfection, Santa Maria, Maximus, Alice Knights, Bernardino, Homespun, Lord Kitchener, Irish Pearl, Mermaid and Flame. Mr. R. Seymour Cobley brought some magnificent flowers from Chircombe, Bideford, and his set could not have been beaten and probably not matched anywhere except at Birmingham or Vincent Square. His flowers included grand specimens of Magnolia, Robespierre, Croesus, and a number of red-cupped Barrii and incomparabilis varieties, as yet un-named. The Rev. T. Buncombe was severely handicapped by the late season, especially as his garden at Black Torrington is in a cold locality and his soil is very heavy. He only managed to exhibit ten varieties and they included fine flowers of Elinor, Princess Badura, Eve, Bernardino and Yellow Poppy. Mrs. Dodd, Windycroft, Instow, showed fine flowers of King Alfred and Weardale Perfection, in addition to the double-flowered Golden Rose. Fairy Queen, Stonechat and Sensation were among the best flowers shown by Mr. C. F. T. Hinchliff, Hillsley, Instow.

Flowers other than Daffodils were shown in fewer numbers than usual, owing to the lateness of the season, but Miss Hinchliff's Anemones, Ranunculus, Tulipa florentina, Grape Hyacinths, Squills, and a collection of blue, red, orange and double Primroses were conspicuous and interesting features. The village blacksmith also put up a very fine collection of Primroses and Polyanthuses. Very few specimens of flowering shrubs were exhibited, but groups of greenhouse plants in pots were exceptionally good, especially those contributed by Colonel Evatt, Mr. C. F. T. Hinchliff and Miss Hinchliff, while a very nice group was also arranged by the local postman.

Apples were not shown so extensively as usual, but Colonel Evatt showed fine dishes of Sturmer Pippin, Newton Wonder, Lane's Prince Albert, Alfriston, Bramley's Seedling, and Belle de Pontoise. Lady R. Christie, of Tapeley Park, also exhibited fruits. Other exhibitors in various sections of the show were Lady Couchman, Loventor, Instow; Miss Guille, Westleigh House, Westleigh; Mr. H. Miles, Odstock, Instow; Mr David Hoyles, and Mr. T. Jennings.

LONDON DAFFODIL SHOW.

April 15 and 16.—The London Daffodil Show held at the Royal Horticultural Hall on the above dates was a comparatively small one owing to the lateness of the season. The majority of the flowers shown were from Ireland and Cornwall. Competition was not keen, but the quality of some of the flowers was superb, notably the first-prize twelve varieties shown by Mr. P. D. Williams. In certain of the classes there were no entries. Trade exhibits were excellent and the three large ones made a good show in themselves. Although the specialists regretted the shortage of competitive exhibits all were surprised that so good a show was provided, having regard to the late spring and the general backwardness of all flowers.

Narcissus and Tulip Committee.

Present: Mr. E. A. Bowles (in the chair), Mrs. Brodie, Messrs. H. V. Warrender, H. G. Harker, R. Cory, G. W. Leak, Herbert Smith, C. W. Needham, J. W. Jones, G. Churcher J. D. Pearson, H. Backhouse, A. R. Goodwin, W. F. M. Copeland, F. H. Chapman, Peter R. Barr, Geo. Monro, Rev. Rollo Meyer, and R. W. Ascroft (Secretary).

AWARDS OF MERIT.

Nevis.—A very good white trumpet variety raised by Brodie of Brodie. The pointed perianth segments are pale cream and the trumpet is neatly frilled and of the same colour. Shown by Mr. F. H. Chapman, Rye, Sussex.

Everest.—This variety is an excellent white Trumpet show flower, borne on long stems and measuring about three and a half inches in diameter. The texture is excellent, the colour pure, and the symmetry good. It was raised by Mr. G. L. Wilson. Shown by The Donard Nursery Company, Newcastle, Co. Down.

Tenedos.—A well-balanced Giant Leedsii measuring about five inches across. The segments are cream coloured, pointed and of good texture; the trumpet is pale citron yellow. It was raised by Rev. G. H. Engleheart. Shown by Mr. J. L. Richardson. Waterford.

OTHER NOVELTIES.

Mr. W. A. Watts, The Welsh Bulb Farms, St. Asaph, showed the varieties Brightling and Glorious. The former is a good Incomparabilis variety suitable for market purposes; the segments are pale yellow and the frilled cup is of bright orange-red. It received an Award of Merit in April 25, 1922. Glorious is a fine Tazetta variety raised by Mr. J. C. Williams. It bears three flowers on the strong, long stems; the segments are white and the flat "eye" of bright orange-red colour.

Mr. W. F. M. Copeland showed Irene Copeland, a double early variety. It is a full flower of cream and light yellow colours.

Messrs. Seymour Cobley, Ltd., showed three market varieties but these were not placed before the Committee. The double form of N. Poeticus ornatus attracted much attention, it is a full flower, pure white and highly fragrant, and doubtless will prove of high commercial value as it flowers fully a month before the common double white variety. Theila is an excellent N. Poeticus variety, of good substance and form, while Hopeful is a variety resembling Fortune, but the segments are not so fine in texture and colour.

OPEN CLASSES.

In the class for twelve Trumpet varieties, three stems of each, there were three competitors, and Mr. J. L. Richardson, Prospect Gardens, Waterford, was awarded the first prize for exceptionally fine blooms of the yellow varieties Mustapha, Cleopatra, Pulhan, and Luxor, together with the white varieties Lady Primrose, Cleopatra, and White Emperor. The Donard Nursery Company Newcastle, Co. Down, gained the second award with outstanding blooms of Van Waveren's Giant, Gorgeous, Magog, and a number of unnamed seedlings, while the third prize went to Mr. F. Herbert Chapman, The Knoll, Rye, whose flowers were somewhat small. For twelve Incomparabilis varieties, three stems of each, Mr. J. L. Richardson, was again the first prize winner, and showed magnificent blooms of Orange Glow, which has yellow segments and a bright orange-red, frilled cup; Bernardino, Golden Pedestal, a fine flower of beautiful golden yellow shade throughout; Croesus, Great Warley, and Macebearer. Mr. F. Herbert Chapman came second with good flowers of Fortune and St. Bernard, and a number of seedlings. The third prize went to The Donard Nursery Co.

Mr. J. L. Richardson was the sole competitor in the class for twelve varieties belonging to the Barrii section and was awarded the first prize. Outstanding vases were those of Firetail, Dosoris, Red Chief, and Queen of Hearts, all of which had brilliantly coloured cups. The Donard Nursery Company showed a noteworthy dozen Leedsii varieties for which they received the first prize; included in their set were Bridal Morn, Empire, with frilled, pale citron cup; Tenedos, Irish Pearl, and some good unnamed flowers.

In the class for twelve Poeticus varieties there was but one entrant—Mr. J. L. Richardson—who showed a number of varieties which were very "green" and not in good form. He received the second prize and his best named varieties were Ringdove, Caedmon and Horace. The same exhibitor was also the only competitor in the classes for six yellow trumpet varieties (first prize); six white trumpet varieties (first prize); and six Leedsii varieties (first prize). He was also successful in the class for six Incomparabilis varieties and showed Brightling, with frilled red cup; King Cup, yellow segments and cup, and Golden Pedestal. Mr. W. A. Watts, St. Asaph, gained second prize. Mr. J. L. Richardson, the only exhibitor, was awarded second prize in the classes for six Barrii varieties with white perianth and six Incomparabilis varieties with white segments.

NEW VARIETIES.

For twelve varieties not in commerce, one flower of each, Mr. P. D. Williams, St. Keverne, Lanarth, Cornwall, won the first prize with a magnificent selection of flowers of extraordinary quality. Of named varieties the best were Traboe, a wonderful white Barrii variety of fine substance, with a prominently rimmed broad cup, and Kilter, a Barrii variety with large, flat, frilled, deep orange cup. Mr. J. L. Richardson came second with a good selection and Messrs. Barr and Sons, Covent Garden, third

For six varieties, not yet in commerce, one stem of each, Capt. H. G. Hawker, Strode, Ermington, Devon, the only exhibitor, was awarded second prize for a number of good seedlings, and in a similar class for three varieties, Mr. W. F. M. Copeland, Shirley, Southampton, was the only entrant and was awarded second prize.

The class for twelve seedlings not yet in commerce and raised by the exhibitor attracted four competitors and Mr. P. D. Williams was again first-prize winner with a beautiful selection consisting principally of unnamed Barrii and Incomparabilis varieties. Mr. J. L. Richardson and Miss I. Worsley, Clifton, Bristol, won second and third prizes respectively.

For six varieties raised by the exhibitor Capt. H. G. Hawker, was placed first with unnamed varieties of good form, and Mr. E. H. C. Thurston, Chandler's Ford, was second. For three varieties, raised by the exhibitor, the Rev. H. R. Meyer, Walton-at-Stone, Hertfordshire, won first prize with varieties not yet named; Mr. W. F. M. Copeland, second and the Rev. G. F. C. Pearce, Grampound, Cornwall, third.

SINGLE BLOOM CLASSES.

In the single bloom section there were ten competitors in the class for a yellow Trumpet variety. Mr. F. H. Chapman won first prize with a magnificent flower; Mr P. D. Williams was second, and Mr. J. L. Richardson third. For one bloom of a white Trumpet variety the last-named competitor was first, with the variety Nevis; Mr. F. H. Chapman second with White Knight; and Miss I. Worsley third. There were twelve competitors in this class.

For one bloom of a bicolor Trumpet variety, Mr. P. D. Williams was placed first with an unnamed variety, out of eight competitors. Mr. J. L. Richardson came second with Lady Primrose, and Capt. H G. Hawker third. In the class for one bloom of a Triandrus hybrid, Mr. W. B. Cranfield, East Lodge, Enfield Chase, was first prize winner with Venetia, a charming pure white flower; Mr. J. L. Richardson second, and Mr. P. D. Williams third. Mr. F. H. Chapman led in the class for an Incomparabilis (yellow perianth) variety with a magnificent bloom of Fortune; Mr. P. D. Williams second with a self yellow variety, and Mr. L. R. Richardson third with Golden Pedestal. For an Incomparabilis bloom (white perianth), Mr. P. D. Williams came first with a charming flower; the second prize went to Capt. H. G. Hawker, and the third to Mr. W. B. Cranfield. The Donard Nursery Company gained first prize for Trumpet-shaped Triandrus hybrid, with Harvest Moon, and Mr. P. D. Williams again was the chief prize winner in the class for a Barrii variety (yellow perianth); Mr. J. L. Richardson was second, and Mr. F. H. Chapman third. For the best bloom of a Barrii variety with white perianth, Mr. P. D. Williams led with a beautiful seedling; Mr. J. L. Richardson second with Firetail. In the class for a Cyclamineus hybrid, Mr. W. F. Copeland secured first place.

There were ten competitors in the class for a single bloom of a Leedsii variety (section A) and Mr. P. D. Williams took chief honours with a refined flower; Mr. J. L. Richardson second with Tenedos, and Mr. W. B. Cranfield third, with the same variety. In a similar class for a Leedsii variety (Section B) Capt. Hawker scored with the variety Geheimniss; Mr. P. D. Williams second and Mr. J. L. Richardson third.

Mr. W. B. Cranfield led in the class for a single bloom of a Jonquilla hydrid with a fine flower of Farthingale; Mr. P. D. Williams second and Mr. J. L. Richardson third. For a Poeticus variety Mr. J. L. Richardson led with the variety Ringdove; the second prize went to Mr. P. D. Williams and the third to Capt. H. G. Hawker. The variety Glorious, very fine, gained the first prize for Mr. J. L. Richardson, in the class for one bloom of a Tazetta hybrid and the same variety was shown by Mr. W. A. Watts who was awarded second prize. For a double-flowered variety, Mr. W. F. M. Copeland was awarded first prize for a large bloom of Irene Copeland, cream and pale yellow; Mr. J. L. Richardson was second.

TRADE GROUPS.

The trade groups were a magnificent feature of the show and a large selection of varieties was staged by Messrs. Barr and Sons which included many unnamed seedlings. Very fine named varieties were Brilliancy, of good colour; Golden Empress, deep yellow trumpet; Noblesse, (Leedsi), Venetio, Fiery Monarch and John Evelyn; this exhibit was finely staged and the blooms clean and bright (Gold Medal).

The Donard Nursery Company also arranged a large and comprehensive exhibit including the varieties Magog, yellow trumpet; Lemon Star (Leedsii), Great Warley, bicolor Trumpet; Sunrise, Southern Gem, and Market Gem, a good Incomparabilis variety; this was a very fine display, but a trifle crowded (Gold Medal).

Mr. W. F. M. Copeland had a small exhibit of seedling Narcissi of his own raising and containing many pretty varieties (Bronze Banksian Medal).

Mr. J. L. Richardson had a splendid display of flowers representing the various sections. A few of the outstanding varieties were Glorious, Fortune, White Dame, Firetail, Empire and Lady Primrose; there were also numerous unnamed varieties (Silver-Gilt Banksian Medal).

The Welsh Bulb Fields showed a pretty group in which the varieties Cleopatra, Sunrise, Brightling, Conieragh and Bedouin were conspicuous (Silver Banksian Medal).

Messrs. R. H. Bath, Ltd., had a group of high quality flowers in which Trumpet varieties predominated. Of these there were fine vases of Golden East, Golden Sunrise, Golden Glory and Rising Sun (Silver Banksian Medal).

Miscellaneous Exhibits.

A charming display of Roses was shown by Mr. Elisha J. Hicks which included the varieties America, Climbing Lady Hillingdon, Clovelly, Mrs. Elisha J. Hicks and Mrs. Beckwith. In the group from Messrs. B. R. Cant and Sons the varieties of especial merit were Mrs. Beatty, Covent Garden, Constance Casson, Rev. J. Page Roberts and Sovereign. Messrs. Allwood Bros. staged an effective display of Carnations in which were Eldora, Topsy, Salmon Beauty and Wivelsfield Apricot, together with a choice selection of Dianthus Allwoodii and Perpetual Border varieties. Among the latter the variety Sussex Avondale, of bright salmon pink colour, was of general merit.

Messrs. J. Carter and Co. showed Cinerarias and Tulips in a wide range of colours and arranged in large decorative baskets. Messrs. Stuart Low and Co. had a group of greenhouse flowering plants, Carnations and Roses. Among the last were fine vases of Columbia and Roselandia, the latter a new variety of rich apricot yellow colour. In a group of Carnations staged by Mr. C. Engelmann the finest varieties were Laddie, Topsy, White Pearl and Vera; this last is a new variety of bright cerise pink shade.

A circular group of Roses was arranged by Messrs. A. J. and C. Allen, who showed a very fine selection of climbing, Polyantha, and Hybrid Tea varieties. Early-flowering Tulips were shown in pots by Messrs. R. and G. Cuthbert, and the same firm also had a display of Azalea indica in variety. Among exhibitors of hardy plants were Mr. G. W. Miller, who staged a large group of Primroses and Polyanthuses in a wide range of colour; Mr. C. R. Downer, who was responsible for a neat display of Aubrietias, Violas, Raoulia australis, and Primula La Lorraine; Messrs. Reamsbottom and Co., from whom came a collection of their famous strain of St. Brigid Anemones; Mr. B. Pinney, who showed Violets; and Messrs. Maxwell and Beale, Mr. Maurice Prichard, Messrs. Wm. Cutbush and Son, Messrs. Skelton and Kirby, and Mr. F. G. Wood, all of whom exhibited rock gardens planted with choice subjects. Mr. J. Douglas displayed a collection of choice florist's Auriculas.

ROYAL CALEDONIAN HORTICULTURAL.

The ordinary monthly meeting of this society was held at 5, St. Andrew Square, Edinburgh, on April 1, Mr. Robert Fife, president, in the chair. The meeting was an open one, and a variety of horticultural subjects was discussed. The only exhibit was one of vegetables, from Mr. J. W. Scarlett, Inveresk (Cultural Certificate). The awards in the competition for the best pot of spring flowers were made as follow:—First and third to Mr. James Weir, 4, Churchill Place, Edinburgh, for Hyacinths; second to Mr. James Arnot, Corstorphine, for Narcissi.

Obituary.

Charles Comfort.—We regret to have to record the death, at the age of 71, of Mr. Charles Comfort—who for over forty years was gardener, first to Mr. Haig, eldest brother of Field-Marshal Earl Haig, and latterly to Mrs. Haig, his widow, at Broomfield, Midlothian—which occurred on April 1st at Musselburgh, where he had resided since his retirement a year or two ago. Mr. Comfort was born in Aberdeenshire, and he served his apprenticeship with the late Mr. Berry, father of the late Mr. George P. Berry, of the Ministry of Argiculture, at Cullen House. He took a great interest in the affairs of the Scottish Horticultural Association for many years, and was president of the Association in 1901 and 1902.

Alexander M'Millan.—There passed away on the 7th April one of the "grand old men" of horticulture in the person of Mr. Alex. M'Millan, affectionately known as "Sandy." He was for many years head gardener at Trinity Cottage, Edinburgh, holding similar positions previous to that in Berwickshire and Dumfriesshire. He was for a time in the nurseries of Messrs. Low and Co., London. While at Jardine Hall, Lockerbie, his employer, the late Sir W. Jardine, was a gardening enthusiast, and among his visitors Mr. Chas. Darwin was frequently an interested critic of the methods of hybridisation carried on there. Passiflora quadrangularis was in those days considered a novelty, and Mr. Darwin questioned the possibility of its ever bearing fruit in this country; Mr. M'Millan, listening to the conversation, determined to try and fruit the plant. He was so successful that his employer showed the fruits in London, much to Mr. Darwin's surprise. While at Trinity Cottage the late Mr. M'Millan was a very successful hybridiser of greenhouse Rhododendrons. He was one of the pioneers of the Scottish Horticultural Society, now incorporated with the Royal Caledonian Society. He lived to the ripe old age of 91 years and so boyish was his spirit that on going to see him two years ago I found him singing and accompanying himself on his violin. He was an able writer on gardening subjects but never could be prevailed upon to read his own papers to the Society, but some obliging friend gladly did so, as they were well worth hearing. One of the most amusing and instructive papers was entitled (if my memory serves aright) "The Infernal Sparrow," which was largely copied by the daily papers both in Britain and America. He was orphaned at a very early age and was entirely self educated. At eight years of age he was sent to a ropewalk to earn his living, and the ropewalk on which he was a "winder" followed the banks of a stream. On the trees overhanging the walk, numerous birds were always in evidence and, being a keen student of nature, he forgot his winding when he saw something interesting, and his employer called him to his daily grind by vigorously ringing a bell. He was the possessor of many medals and trophies gained in competition. To his aged widow and family the deepest sympathy will be offered. Though an old friend has gone his work is not forgotten. *Diosma.*

Edmund Sang.—By the death recently, at an advanced age, of Mr. Edmund Sang, the last survivor of the well known nursery firm of Messrs. Edmund Sang & Sons, of Kirkcaldy, has been removed, and the business has now passed into other hands. It was founded by Mr. Sang's grandfather, Mr. Edward Sang, who edited and completed, in 1812, Nicol's *Planter's Calendar*, and was a noted man in his day. Mr. Edmund Sang was a nephew of Dr. Edward Sang, the eminent mathematician, and also of Mr. John Sang, civil engineer, who invented the height-measuring instrument now familiarly known as the "apomecometer," the first of which he made with his own hands and presented to his friend, John Claudius Loudon, in 1840 (*Gardeners' Magazine*, vol. xvi, p. 191). The late Mr. Sang was of a very retiring nature, and took little part in public affairs.

Mrs. Seden.—The widow of the late John Seden, V.M.H., who for many years was a prominent member of Messrs. J. Veitch & Sons' staff, at Chelsea, died on the 8th inst., after a long and painful illness.

J. C. Vaughan.—A cablegram from America contains the regrettable information that Mr. J. C. Vaughan, founder and president of Vaughan's seed stores, Chicago and New York, died of pneumonia on the 12th inst.

TRADE NOTE.

A Meeting was held at 18, Bedford Square on the 9th April, 1924. *Present:* Mr. R. Seymour Cobley (in the Chair), Dr. S. G. Paine, Professor Maxwell Lefroy, Mrs. Evelyn Snell, Messrs. H. H. Wardle, J. K. Ramsbotham, A. S. Galt, P. F. Bunyard, the Hon. Secretary Mr. T. Parker, and the Chamber Secretary.

In response to an invitation, three sample manuscripts for broadcasting were submitted to the April meeting of the Technical Committee of the Chamber of Horticulture. These were:—

> (*a*) Wanted! More and better Potatos; a critical time for the 1924 crop: by Mr. A. S. Galt. (*b*) The Slime Fungi and Spring Cleaning of the Garden: by Mr. A. S. Galt; (*c*) Pests and how to control them: by Mr. Theodore Parker.

It was resolved to send these manuscripts to the British Broadcasting Company as from this Committee, suggesting that they should form a horticultural "talk" of about fifteen minutes.

A sample manuscript prepared by the Hon Secretary with reference to the history, identification and control methods for Crown Gall was submitted. After discussion it was resolved to send this to the Horticultural Trades' Association for publication in the trade press. The point recently raised by the H.T.A. as to the importation of stocks infected with Crown Gall was discussed and the Committee expressed the opinion that this should not be allowed to rest but that the Association responsible should continue agitation with a view to minimising this serious trouble.

The Secretary reported that the Educational Film Company had invited him to submit the Committee's suggestions of additional subjects for filming. Professor Lefroy gave helpful advice, and it was agreed to ask all members to give this matter their consideration before the next meeting.

Messrs A. S. Galt and T. Parker were appointed to represent the Committee at the forthcoming International Horticultural Conference of the Federation Horticole Professionnelle Internationale.

A meeting of the Parliamentary and Rating Committee of the Chamber of Horticulture was held recently, at which it was decided not to proceed with the giving of evidence on behalf of glasshouse growers before the Ministry of Health Departmental Committee, which is inquiring into the law and practice of Rating of Machinery. The reason for this altered decision is that to argue on the lines that glasshouse piping and boilers are machinery would seem to class glasshouses as factories, whereas for purposes of rating assessment as a whole it is certainly desirable that an effort should be made to class horticulture together with agriculture. Therefore the Ministry of Health has been advised that the Chamber will not submit evidence before the Rating of Machinery Committee, but that the horticultural industry's case will be stated through the medium of the pending new Rating and Valuation Bill.

THE

Gardeners' Chronicle

No. 1948—*SATURDAY, APRIL* 26, 1924.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 49.7.

Actual Temperature:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 23, 10 a.m.: Bar 29.9°: temp. 45°. Weather Dull.

The Iris.

All who find pleasure in the cultivation of the Iris—and who does not!—will discover much of interest and value in the recently published Report[*] of the first International Iris Conference held in Paris two years ago. From it the curious will learn from Mr. Dykes that the earliest known representation of an Iris occurs in an Egyptian bas-relief of the fifteenth century B.C., and those interested in the origins of things may discover from the same source that Spanish Irises are garden selections from Iris xiphium, whereas Dutch Irises are hybrids between a large-flowered form of that species, but known wrongly in gardens as I. filifolia, and the Spanish Iris. The amateur who would like to take an intelligent interest in the genus will find in Monsieur J. Gérome's introductory article much that is helpful. It is only a gifted Frenchman who can render common-place facts vivid and interesting, and that is what M. Gérome has done. His description of the curious flower of the Iris is admirable. As he points out the terminology used by adepts is not altogether happy. Like other typically Monocotyledonous flowers the Iris has six perianth segments. The three outer ones—the sepals—spoken of by Miller in his *Gardeners' Dictionary* as the "falling petals," are usually referred to as the falls. They do not, however, always hang down, curved on themselves. For example, in the Japanese Iris (I. laevigata) they stand out and are all of one piece. However, in Irises like I. germanica, they do fall. In this species also, running along the middle of the narrow part of each fall, is a line of yellow hairs, known as the beard and regarded formerly as constituting the stamens of the flower. The position of the beard is of importance as a means of distinguishing different sections of the genus. In Pogoniris, to which I. germanica belongs, the beard is confined to the middle band of the narrower basal part of each sepal. In the section Oncocyclus, to which I. Susiana belongs, the beard covers the surface of the limb of each sepal. Others are beardless, *e.g.*, from Iris Pseudacorus the beard is absent. Still using I. germanica as the type, the three upstanding inner perianth lobes are known as the standards. The essential organs of the flower are peculiar. The stigma is borne, as is always the case, on a columnar structure, the style is divided into three large, flat over-arching petaloid (coloured) lobes, which are each grooved or bi-furcate at their ends. Careful observation will show in each stigmatic lobe a transverse fold which is the pollination place, that is, the region on which pollen must be deposited if it is to effect fertilization. The three stamens with which the Iris flower is provided consist of three petaloid, blade-like structures which lie closely under the outer face of the stigmatic lobes. They bear elongated anthers which, when ripe, open by a longitudinal split that faces away from the stigmatic lobes and toward the beard. Hence pollen discharged from them may be held among the hairs of the beard. In this character of dehiscing or bursting along a groove on their outer face, the genus Iris is distinguished from other genera of the family, *e.g.*, Crocus and Gladiolus. Having made clear the peculiarities of the flower, M. Gérome proceeds to enumerate the Irises which have been grown longest in gardens, in order that anyone who desires to understand the genus and to learn something of the parentage of its innumerable hybrids may make, as it were, a type collection; for assuredly many of the parents of these hybrids will be found among the old-established species. Medicine, perfume and occasionally food being derived from certain Iris, the collection of the genus began in the physic gardens and in very early days Iris Pseudacoris and I. foetidissima were cultivated not for ornament but for use. But as the number of collected species grew the pleasure of regarding them increased and by the early years of the last century the *botaniste cultivateur* was able to enumerate forty species of Iris in cultivation in 1814. They included among rhizome-bearing species I. germanica, I. pallida, I. sambucina, I. squalens, I. variegata, etc. The Florentine Iris was of course known but was too tender to grow in northern France. Already some six varieties of the small-rhizomed Iris, I. pumila, were cultivated, as also were I. susiana called by the French the Crépe or Mourning Iris, a native of Persia and the Levant. Its brown-black flowers, veined with purple-violet and its violet beard conferred an unique distinction upon this species, which is said to have been introduced in 1573. I. japonica (fimbriata) came much later, in 1792. These rhizomatous, bearded Irises may be grouped according to the cut of their beard. Pogoniris and Oncocyclus have already been referred to; in the section Hexagona, the beard, as in Iris florentina, occurs on the base of all six segments of the perianth. So early as the sixteenth century bulbous Irises were also cultivated. They differ from the rhizomatous not only with respect to the form of their underground stem but also in their leaves, which are guttered or canaliculated and not spear or glaive-like. Among them were the early-flowering I. xiphioides from the Pyrenees, with petals shorter than the sepals, and I. Xiphium; I. persica, cultivated since 1629, with flowers almost stalkless and very early, only succeeding under glass. It is one of the Juno group, whereas I. xiphioides and I. Xiphium belong to the Xiphium section. Hybridisation which has done so much to embellish our gardens has done almost as much to confuse our judgment of the methods to employ to classify garden hybrids. In the case of the Iris the entirely empirical scheme proposed by the R.H.S. to use colour as a basis of classification would seem to be the only one to adopt; but if so, it is all the more important that those who take pleasure in scientific horticulture should endeavour to keep in mind the main lines along which the Iris evolved before man intervened to cross the members of the genus and weave them into the inextricable, hybrid tangle.

American Iris Society.—At the March meeting of the Directors of the American Iris Society the importance of regulating the introduction of novelties was discussed and the even greater importance of giving almost immediate official recognition to such varieties as prove worthy. At present a symposium is published five years after the introduction of a variety, but with the registration of almost two hundred varieties in 1923 a more immediate report seems most desirable and a committee has been appointed to consult with Prof. A. P. Saunders, Secretary of the American Paeony Society concerning a policy which may prove practical to both societies. Dr. Gleason of the New York Botanical Garden reported plans for the rearrangement of the 900 varieties in the present Iris Test Garden that will lead to the development of two plantings, one in alphabetical arrangement for purposes of identification, the other according to colour in order to show the value of Irises for display. Fertiliser tests have been initiated at Cornell and it is hoped that similar experiments may be carried on at New York and elsewhere. The publication of four Bulletins each year was strongly advocated and Bulletin 10, *Irises for the Beginner,* is to be re-issued for general sale. This illustrated booklet of some sixty pages is planned to answer all the odd questions an amateur gardener asks, and will be sent free to each new member. A Bulletin on "Beardless Irises" is in preparation and it is hoped that the new Iris Society of England will accept an invitation to contribute articles for a special issue to be published later in the year. Mr. George Yeld, the President, to whom we owe the introduction of varieties like Lord of June, Prospero, and Asia, has been elected an Honorary Member of the American Iris Society. In 1923, the fourth year as an organisation, there were some 700 members of the American Society, and the policy of co-operating in many local exhibitions each year and of restricting expenditure largely to the publication of Bulletins, has made for a gradual but steady growth. The subscription is $3.00 a year and anyone interested is eligible for membership. The Secretary is Mr. R. S. Sturtevant, Wellesley Farms, Mass. U.S.A.

British Empire Exhibition.—Amid stately and gorgeous pageantry befitting so great an occasion, His Majesty King George V. opened the great British Empire Exhibition at Wembley on Wednesday, April 23. Accompanied by H.M. Queen Mary he journeyed from Windsor to Wembley and

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Les Iris Cultivés. Published by the Société Nationale d'Horticulture de France, 14, Rue de Grenelle, Paris, 1923.

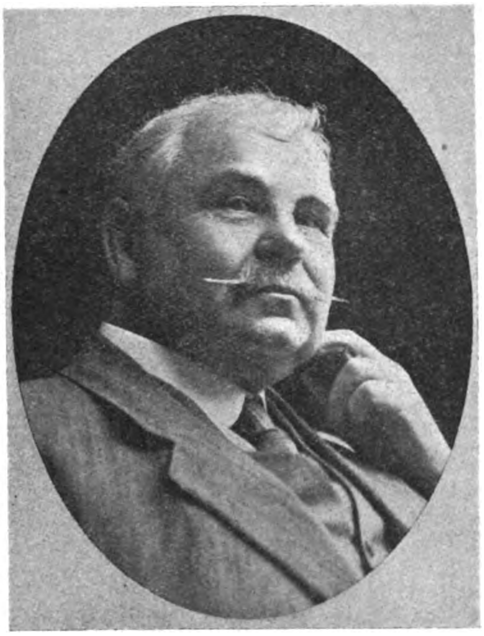
all along the many miles of the route their Majesties had ample evidence of the love of their people. In the magnificent Stadium the reception their Majesties received only exceeded that accorded to H.R.H. The Prince of Wales, President of the Exhibition, who gave an official welcome to his Royal parents. The massed bands of the Guards Brigade and a fine choir of many hundreds of voices rendered suitable music before and during the ceremony. The exhibition is a huge one, as we have intimated on many occasions; at present the horticultural features are not at their best, but with the advancing season they will provide a beautiful setting for the various sections of the exhibition and indicate the flora of many parts of the Empire. In due course we hope to publish a series of notes in which the principal items of horticultural interest at Wembley will be described.

Admission and Guide to Kew Gardens.—The charges for admission into the Royal Botanic Gardens, Kew, which have been in force from January 1, 1916, have been revised and visitors are now admitted free on Mondays, Wednesdays, Thursdays, Saturdays and Good Fridays; on Tuesdays and Fridays (students' days), except Good Friday, the charge for admission is 6d.; a charge of 3d. is made for sketching and photographic apparatus. Bath chairs and perambulators will be permitted to enter the gardens during public hours, when the condition of the paths is suitable, on payment of 1/- on students' days (as above), and 3d. on other days. Students' season tickets are obtainable on written application to the director by *bona fide* students and are issued on payment of a fee of 5s. These tickets are available before public hours on week days except Bank Holidays and Good Fridays. Visitors' season tickets are issued at a charge of 5s. and will admit the holder any day during public hours, while the charge for bath chairs and perambulators, with attendant,' is £1 10s. for the season. The new scale of admission charge came into effect on Easter Sunday, April 20. An illustrated guide to the Royal Botanic Gardens has also been recently issued and contains historical notes dating from the time of its foundation to the present time. The chief buildings, houses and outdoor features of the Gardens are described, and objects of interest to be found in different months of the year are briefly outlined.

Imperial Fruit Show.—The Guarantee Fund formed to finance the Imperial Fruit Show to be held in Bingley Hall, Birmingham, on October 24 to November 1, next, has now reached the handsome figure of £4,365, so even at this early date the guarantees almost reach the £4,600 raised for the Manchester show in 1923. It is hoped that before long at least £5,000 will be guaranteed. Among the principal guarantors are the National Federation of Fruit and Potato Trades Association; the Manchester and District Wholesale Fruit Buyers' Association; Liverpool and District Fruit Buyers' Association; Association of Fruit Brokers of Manchester Ltd.; Wisbech and District Fruit Growers' Association; London Fruit, Flower and Vegetable Markets' Association, Ltd.; Royal Horticultural Society; National Federation of Retail Fruiterers, Florists and Fishmongers, Ltd., and the Liverpool Wholesale Fruit and Potato Merchants' Association.

Descriptive Labels.—We understand that the Cambridge University Press will shortly publish a small book of *Descriptive Labels for Botanic Gardens*, by Mr. H. Gilbert-Carter, Director of the Cambridge University Botanic Garden, the object of which is to induce those in charge of collections of plants to exhibit them so as to give information as will as pleasure to as many people as possible and, in particular, to adopt descriptive labels similar to those in use in the Cambridge University Botanic Garden.

Mr. James Brown.—For a lengthy period the gardens at Burford Lodge, Dorking, have been among the most famous in the British Isles. The late Sir Trevor Lawrence, for so long President of the Royal Horticultural Society, made the collection of Orchids at Burford Lodge one of the finest ever brought together, as it was rich in species as well as in fine hybrids and varieties. Sir Trevor also brought together a fine collection of rare and beautiful trees and shrubs. Fortunately, his son, Sir William Lawrence, inherits his father's horticultural tastes, and although these do not run in the direction of Orchids, they are, nevertheless, expressed very strongly in the beautiful gardens that lie at the foot of Boxhill. Fortunately also there have been some excellent gardeners at Burford Lodge and our readers will remember the many successes of Mr. Bain. Mr. James Brown, who is now steward and gardener to Sir William Lawrence, commenced his professional career in the gardens at Somerton Erleigh, then one of the leading gardens in the west of England. He remained there for over five years under Mr. Thomas Piper, a famous gardener and strict disciplinarian. From Somerton Erleigh he went to The Hendre Gardens, where Mr. Thomas Coomber, a splendid cultivator, was then in charge. After two years at the Hendre gardens he became journeyman and propagator at the Grove Gardens, Watford, where the late Mr. Jonathan Myers was then head gardener and where plant cultivation under glass was a special feature. Coming to London Mr. Brown entered service at South Villa, Regent's Park, where Mr. George Kelf was then gardener. While here he had the opportunity of visiting the principal exhibitions and public and private gardens in the London district. His next position was that of foreman at Belton House, Grantham, the seat of the Earl of Brownlow. Thence he passed on to become general foreman at Croxteth Hall gardens, Liverpool, the seat of the Earl of Sefton, where gardening was then carried out on a most extensive and elaborate scale. After leaving Croxteth Hall he took charge of the gardens at Binbrook Manor, Lincolnshire, for J. W. Clark, Esq., an enthusiast in the cultivation of fruits. Here Mr. Brown remained for four years and was particularly successful as an exhibitor of fruits and vegetables. Later he was instrumental in developing the gardens at Orford House, Lincolnshire, for J. Drakes, Esq., where he superintended the building of vineries and orchard houses and planted the vines which a little later produced the Grapes with which Mr. Drakes won the Shrewsbury Challenge Cup. Mr. Brown left Orford House to become estate bailiff and gardener to the late Sir George S. MacKenzie, at Tempsford Hall, Sandy, Bedfordshire. Here he remained for seven years when, on the death of his employer, the establishment was broken up. Very shortly afterwards he became estate steward and gardener to J. Campbell, Esq., Woodseat, Uttoxeter, where he had charge of an estate of nearly seven hundred acres, in addition to the gardens, in which fruit was grown on a very extensive scale. In May, 1916, he became steward and gardener to Sir William Lawrence at Burford Lodge, Dorking. After the dispersal of the Burford Lodge collection of Orchids the glass department was entirely re-organised and many of the Orchid houses were converted into vineries and orchard houses. The gardens at Burford Lodge are splendidly kept and now contain an excellent collection of rare hardy plants and choice shrubs, in additition to Anthuriums and many other old favourite plants which are still grown under glass. Splendid Grapes are grown at Burford Lodge and those who have seen them consider they would take a very high position at any exhibition. In all his work Mr. Brown receives every possible encouragement from Sir William Lawrence and for this reason he considers the past seven years have been the happiest of his life.



MR. JAMES BROWN.

Harding Cup for Paeonies.—Paeonies are so comparatively easily cultivated it is a matter of surprise that they are not more largely used in our gardens than appears to be the case. In America their value has been realised for some time and there seem to be many enthusiasts who cultivate a large number of varieties. Among them the best known is Mrs. Edward Harding, who published in 1917 *The Book of the Peony* and, more recently, in 1923, a smaller volume on *Peonies in the Little Garden.* So convinced is Mrs. Harding of the value of Paeonies for garden decoration that she has presented to the Royal Horticultural Society three cups to be awarded in 1924, 1925 and 1926 respectively. The first will be offered for competition at the R.H.S. Show on Wednesday, June 11th, 1924, for the best exhibit by an amateur of three flowers each of six varieties of Paeony. Medals will be awarded as the second and third prizes if the exhibits are considered to deserve them. It is hoped that Mrs. Harding's generous offer will encourage a keen competition among amateur growers of Paeonies. Entries should be sent to the Secretary of the Royal Horticultural Society, Vincent Square, London, S.W.1, not later than the first post on the morning of Wednesday, June 4, and all exhibits must be staged not later than 11 a.m. on the morning of Wednesday, June 11.

Training and Examination of Seed Analysts.—A third course of training will be given in the summer of 1924, beginning on the 21st July, at the Official Seed Testing Station, Cambridge. A limited number of seed analysts will be admitted to the course on the following conditions:—(1) the course will be limited to persons who satisfy the Chief Officer of the Station that they are fitted to take advantage of the instruction. They must be (a) nominated by seed firms who intend to offer employment to such nominees in their own seed testing stations, or (b) recommended by universities, agricultural colleges and institutions, or (c) approved by the council of the institute: (2) an examination will be held at the conclusion of the course, and certificates will be issued to students who satisfy the examiners. The examination will also be open to practical seed analysts who have not attended the course of training, provided that they are nominated, recommended or approved as described in (1): (3) the fee for the training course, which will end on the 21st August, including the examination fee, will be £6 6s. The entrance fee for the examination only will be £1 1s.; (4) persons wishing to attend the course and sit for the examination only should apply for entrance forms not later than 1st May, 1924, to the Secretary, National Institute of Agricultural Botany, Huntingdon Road, Cambridge, from whom particulars of the course of training can be obtained. In all cases students must provide their own accommodation at Cambridge, but they will be able to take their meals at the Institute Club, and the Secretary will supply, on request, addresses at which rooms are obtainable.

Scottish Forest Film for Wembley.—Arranged and conducted under the auspices of the Scottish Forestry Commissioners, the life history of a tree has been filmed in the Royal Forest, Birkhall, near Balmoral Castle, Aberdeenshire. The life of the tree is traced from its earliest stages to the time when it is felled and carted away. The film has been specially prepared for exhibition at the British Empire Exhibition.

Appointments for the Ensuing Week.—Tuesday, April 29: National Auricula Society's show in conjunction with the meeting of the Royal Horticultural Society's Committees (2 days). Wednesday, April 30: Morley and District Paxton Society's meeting. Thursday, May 1: Nottingham and Notts. Chrysanthemum Society's meeting. Friday, May 2: Orchid Club's meeting. Saturday, May 3: Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*April weather.*—"What weather! What wretched weather in April! Did you ever know so bad a spring?" are questions put on all sides, every one believing, as they always do, that the bad weather of the day is the very worst that has been ever felt; so keen is our perception of pain present, and so quick our forgetfulness of pain past. For ourselves we neither admit London weather to have been unusually severe, nor the spring itself unusually unpropitious. In April, 1849, we forget the snow and sleet, and heavy rains of April, 1848, especially since the latter fell by night, and the former have fallen by day. No doubt there has been more snow, and a lower temperature in this present month of April than we always have; the season itself is backward, and May, 1849, will resemble April, 1848. So much the better. Nothing is more disadvantageous to this country than the nice comfortable warm springs which tender folks delight in. Such springs only force into growth a delicate race which the first cold nights cut off. It is delightful to see on the very threshold of winter, as we quit his dreary tent, the meadows sparkling with vernal flowers, and the orchards painted white and pink with the delicate harbingers of autumnal fruit, and to feel the soft west wind as the Atlantic breathes upon these northern shores. Nothing can be more agreeable. But, unfortunately, such pleasures carry penalties in their train, and the fair promise of Chaucer's spring is too frequently marred by an unpoetical May. There can be no doubt that upon the whole such springs as we are now enduring are far more advantageous to the cultivator than the brilliant days in which holiday folks delight. It generally happens in cold springs that when the cold weather does leave us we feel no more of it; and it is always found that the flowers "engendred" amidst storms and sleet, are the most capable of enduring such cold as they may have to bear.—*Gard. Chron., April* 28, 1849.

Publications Received.—*The Flower Seeker.*—By Forster Robson; Cassell and Co., Ltd., La Belle Sauvage, E.C. 4. Price, 3s. 6d. net. *Flora of the Presidency of Madras.* By J. S. Gamble. Part VI. Adlard and Son and West Newman, Ltd., Bartholomew Close, E.C Price 10s. net.

BULB GARDEN.

TULIPA DASYSTEMON.

This is a very small species, not exceeding a few inches in height, therefore the plant is eminently suited to the rock garden, where, in a well-drained soil and sunny position, it will be an object of interest in the early days of April.

The small flowers are produced in twos, threes, and even fours on one stem; they are glistening white, with a golden-yellow base, the exterior marked with green and brown. The leaves are linear, bright green, acute, not more than four or five inches in length.

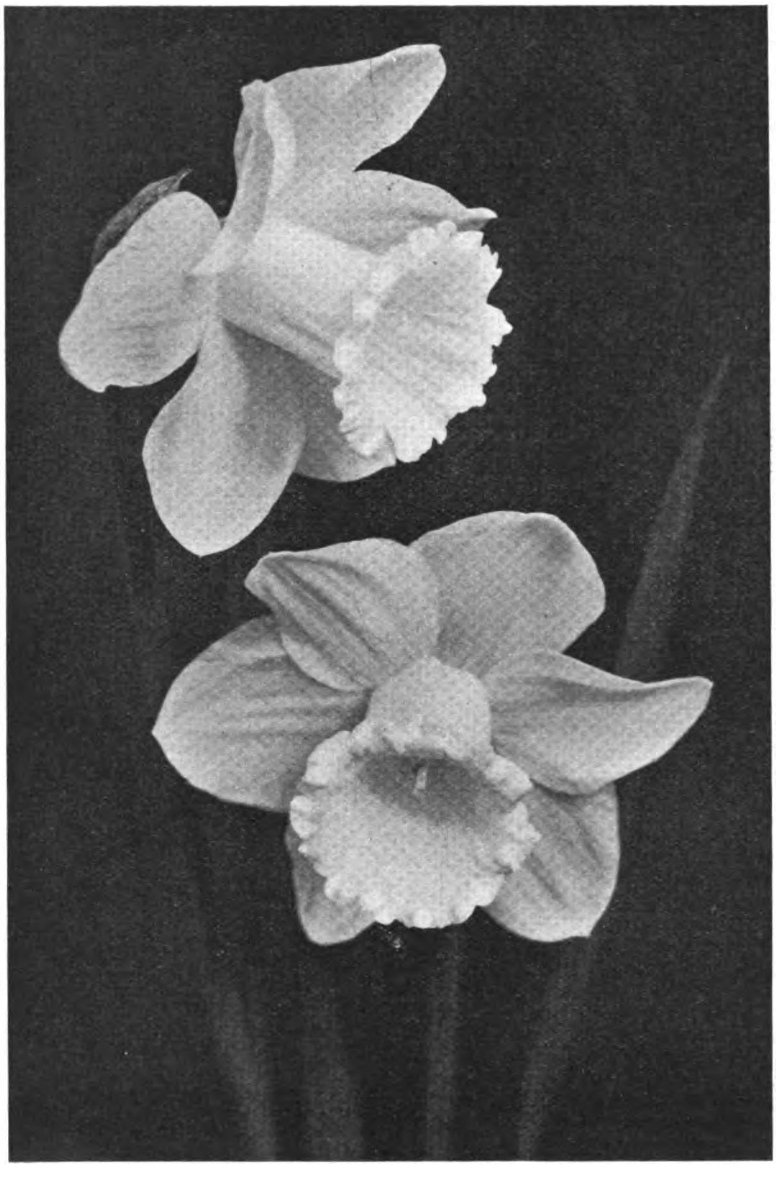


FIG. 97.—NARCISSUS EVEREST: R.H.S. AWARD OF MERIT, APRIL 15 (SEE P. 229).

This very easily-grown Tulip is one of the most desirable of the smaller species and should be included in every rock garden; it is also a delightful plant when grown in pans or pots. *Ralph E. Arnold.*

SNOWDROPS FROM SEEDS.

The writer of the interesting article on "Snowdrops" in your issue of March 22nd seems somewhat sceptical as to the capacity of the Snowdrop to produce fertile seeds.

Mr. James Allen in the *Journal* of the Royal Horticultural Society for 1891, discusses the raising of Snowdrops from seeds, and considers that it is not at all difficult. He states that after gathering the seeds they should be kept in an airy place for a week or two so as to thoroughly ripen, and then they should be sown so soon as possible. He did not, however, meet with much success from sowing in the open ground, and therefore used boxes which he placed about two feet from a north wall. The seedlings were left in the boxes until they began to flower, which was usually in the fourth season. It was noticed that the seedlings came up very irregularly, and also that if the seeds were kept until the spring they did not germinate until the following year.

In the same number of the *Journal* of the R.H.S. Mr. F. W. Burbidge, writing on the Snowdrop, states that: "Wherever Snowdrops luxuriate in grass or in beds and in borders they also seed freely, and I have known Snowdrops to become well established from freshly gathered seeds sown on soil where bulbs were formerly tried, but had died away. Seeds should be sown as soon as they are ripe; they germinate the succeeding winter and spring, and seedlings flower from three to five years."

It would seem, therefore, that, in the opinion of at least two expert horticulturists, Snowdrops may be propagated from seeds. *F. E. Weiss, University of Manchester.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Cœlogyne.—Cœlogyne pandurata has started to make new growth, and specimens that have overgrown their receptacles may be re-potted at this period. In the process of re-potting, remove any unnecessary back pseudo-bulbs, leaving only two behind each leading growth. Plenty of space in the pan is necessary, as the rhizomes will extend some inches each year. A compost similar to that recommended for Thunias is suitable for these plants. They grow best in pans of a medium depth and suspended from the roof-rafters of the warmest house. Other Cœlogynes, such as C. Massangeana, C. Lowii, C. barbata, and others of this class are making new growths, and may be re-potted now. The temperature of the Cattleya house is suitable to most members of this type of Cœlogyne, but the chaste C. Mooreana thrives best when suspended from the roof of the Odontoglossum house.

Repotting and Top-dressing.—Any specimens that require repotting or top-dressing should be attended to before root action is very far advanced. Among the many plants that need attention in this respect may be mentioned the quaint and distinct genera Cycnoches, Catasetum, and Mormodes, which after a long season of rest, are commencing to grow afresh. It is advisable to re-pot these Orchids each year; shake the plants out of the old compost, cut away all decayed parts and pot the plants afresh in receptacles of moderate size only, for over-potting is injurious to them. Use plenty of drainage and employ Osmunda fibre, cut into rather short portions, as a rooting medium. Ordinary flower pots, with three holes just under the rim to permit of wire handles being attached, form the most suitable receptacles. The plants should be suspended from the roof-rafters in a house having a warm, moist atmosphere. They will grow quickly, and the new pseudo-bulbs will be matured early in the season; they may then be exposed to full sunshine during the late summer and early autumn.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Bedding Plants.—Early potted plants of such subjects as Zonal Pelargoniums, Fuchsias, Marguerites, and Heliotropes may now be safely stood in cold frames and thus relieve the congestion in heated pits and houses. Provision should be made for covering the frames with mats at night, but ample ventilation should be given during the day, removing the lights entirely whenever the weather is favourable. Great care should be exercised in this matter, however, when cold winds are prevalent, as nothing is more damaging to unhardened plants than cold draughts.

Box Edgings.—Where gaps occur in Box edgings the present is a suitable time to make good the bare spaces. Any plants which have got beyond reasonable dimensions may be broken up and replanted. Clip to neat outlines on completing the work.

Lawn Verges.—Well kept verges add greatly to the appearance of beds and borders, and where necessary they should be pared with the edging iron now before mowing becomes frequent. This will facilitate the work of clipping the grass during the rest of the season.

Wall Climbers.—Vegetation generally is very backward, but many wall plants in warm positions are developing growths rapidly and will need frequent attention in the respect to training the shoots. Plants which have a tendency to twine should receive constant attention, and Wistarias in particular should have their leading growths tied in regularly or they will soon become a hopeless tangle. Growths not needed for extension may be pinched to three or four leaves. Newly-planted climbing shrubs on walls should have regular and copious waterings, as even when rainfall is substantial it is surprising how little reaches the foot of a wall, and until climbers in these positions have made a wider rooting area they are not able to obtain sufficient moisture for satisfactory growth.

Half-hardy Annuals.—Seedlings of half-hardy annuals raised from seeds sown in frames last month should be pricked off as soon as they attain their third leaf. Keep them as near the glass as possible and grow them on in buoyant atmospheric conditions. Where frames are not available, sowings may be made on a border, but such plants will naturally be late in flowering. Single Asters from present sowings provide valuable material for cutting during late summer and autumn.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Peaches and Nectarines.—The early fruits of Peaches and Nectarines are passing through their stoning stage and very little progress will be noticeable until this period is passed. The grower should give the trees a little extra care and attention whilst the stones are forming, and should provide a regular night temperature of 55° to 60° with a rise of 10° to 15° by day. Admit air freely whenever the outside conditions will allow of this and reduce the amount of artificial warmth to a minimum, otherwise there will be a risk of forcing the trees, with detrimental results. Keep the bare spaces in the house lightly damped and use the syringe freely during hot, dry weather, using for preference soft rain water after it has been warmed to the inside temperature of the house.

Late Pot Strawberries.—The late batches of Strawberries growing in cool houses and pots will need more than ordinary care with regard to watering the roots. With increasing sun power and drying winds they will require attention in this matter several times during the day. Probably the greatest cause of failure with late pot Strawberries is error in watering; if the roots are allowed to remain dry for a considerable length of time the berries will be ill-shaped and deformed. When the plants are found to dry out quickly they should be watered on alternate occasions with weak liquid manure during such time as the fruit is swelling, but the use of stimulants should be discontinued when the fruit is ripening. At that stage slightly reduce the amount of moisture at the roots or the fruit may become watery and lacking in flavour.

Early Pot Figs.—The earliest Figs growing in pots will soon be past their flowering period. The roots will need ample supplies of liquid manure, their receptacles by this time being well filled with roots. Abundant root activity with an increased amount of ventilation and a higher temperature calls for very careful attention in supplying moisture. The night temperature should be as near 65° as possible; the top ventilators may be opened slightly during this stage of growth, closing the house early for a short time before admitting night air. Remove all weak growths and pinch all strong shoots so that the fruits may be well exposed to the sun's warmth and light; these details are essential to obtain good colour and flavour in Figs.

PLANTS UNDER GLASS.

By F. J. Clark, Gardener to Lt.-Col. Sir George Holford, Westonbirt, Tetbury, Gloucestershire.

Treatment of Flowering Shrubs after Forcing.—The degree of possible future usefulness of forced subjects will depend, to a large extent, on the early treatment the plants receive after they have been forced. Deutzia gracilis, and its variety Lemoinei, should be cut hard back immediately after flowering, and this should also be done in the case of Spiraea Van Houttei, Hort. For a few weeks the plants should be grown in a warm house, such as an early Peach house or vinery, to encourage the early production of new growths, on the appearance of which the plants should be given frequent applications of weak liquid manure. Standard specimens of Prunus species, Wistaria, etc., should be cut back closely to ensure the formation of shapely heads. Dwarf plants of Prunus, Forsythia, Staphylea, etc., should be well thinned of the shoots. These last named plants, however (as apart from the Deutzias and Spiraeas), should not be grown in heat or shaded at this stage. A cool orchard house in which fire heat is only applied to exclude frost, will afford ideal conditions The plants should be syringed twice daily to cause them to break into new growth freely, and later, when danger of frost is over, they should be plunged out-of-doors, in a bed of soil or coal ashes, to the rims of the pots. If a site is chosen near other plants which must receive daily attention in watering, there will be less risk that the want of the plunged plants in the matters of watering and feeding will be overlooked.

Primula malacoides.—During recent years this species has become deservedly popular, as it is amongst the most useful members of the genus. The variety Princess Mary may be strongly recommended as an improvement on the type. It is of vigorous habit, the flowers are produced on stiff stems which are thrown up well above the fine foliage. The plant is very free-flowering.

Cineraria.—For a batch of earliest flowering plants, seeds of Cineraria may also be sown now. Sow thinly in well-prepared pans. The seeds should be germinated in a cool temperature, and the young plants should be pricked off into other pans so soon as they are large enough, and the plants grown under cool conditions always.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Peaches and Nectarines.—Owing to the cold winter these trees are somewhat later in developing than usual, but where they are ready for disbudding, all shoots growing towards the wall should be removed, and about half of the others on the branches. The operation of disbudding is a most important one, and it is wise to do the work on at least two occasions, otherwise a check may result and cause the young fruits to drop. Disbudding should be done as soon as the shoots are large enough to handle, as this would cause less check to the tree than when they are larger. At the final disbudding leave one strong shoot at the base of each last year's growth and one at the top; this will ensure plenty of strong growth for next season. It should be borne in mind that one well-ripened, medium-sized shoot is worth three or four weak ones. Do not thin the fruit at the same time. Examine the border, and if the soil is dry, lightly fork the surface and give the soil a copious watering especially close to the wall.

Protective Coverings.—The protective material may now be removed from Apricot trees with a reasonable hope that the trees will not take any damage from frost. Locality has much to do with the date when the material may be dispensed with. In cold districts and situations the protection may be afforded for a little longer, but the grower should use his discretion and err on the safe side. Continue to disbud the fruits of these trees if they require it, and also apply water to the roots if moisture is found to be necessary.

Nuts.—Keep the ground tidy around Nut bushes and thin the shoots where they appear to be too thick. Pull out suckers from the base of the bushes, as these appropriate a lot of nourishment from the fruiting wood.

General Remarks.—All grease bands should be removed from the stems of fruit trees, and burned. The recent cold, dry weather may have caused the clay or wax used in grafting to crack; if this has occurred, place fresh material around the grafts, and also examine the ties of others to see that they are not too tight. If it can be seen that the stock and scion are uniting do not be in too great a hurry to remove the covering; it is better to leave it until a perfect union has taken place. As soon as the scion commences to grow freely, one may be sure that the operation has been successful, and the clay or wax may be removed, and some broad bast tied loosely around the union for a time. Keep a watchful eye on insect pests, and adopt prompt measures for their destruction before they have time to spread.

THE KITCHEN GARDEN.

By Walter Y. Staward, Gardener to Mrs. John Feeney, The Moat, Berkswell, Warwickshire.

Runner Beans.—It is too early to sow Runner Beans in the open, but a crop may be had much more quickly by sowing seeds in pots or boxes, germinating them in a cool frame and then planting out in the open. Large quantities of plants are not needed for this early supply; a row or two will suffice. Plants raised in heat suffer a check if they are not thoroughly hardened previous to planting them out-of-doors, but by sowing a little earlier in a cool frame and keeping the latter closed until the seeds germinate, better plants are secured. If a sowing is made in the open about the second week in May, the crop from these plants will provide a succession of pods.

Lettuce.—Plants that have been raised under glass may now be safely transferred to their permanent quarters in the open. Make fortnightly sowings of both Cabbage and Cos varieties.

Early Beet.—A sowing of Egyptian Turnip-rooted or Sutton's Globe Beet may be made in soil that has not been manured recently. Sow the seeds thinly in drills made 15 inches apart and thin the young plants to 9 inches apart in the row.

Cardoons.—Seeds of Cardoon should be sown in pots and germinated in a cool frame. Trenches should be prepared for the reception of the plants the same as for Celery. Single rows give the best results and the trenches should be made in a situation where plenty of light is available and a good water supply. If preferred the seeds may be sown in the trenches; they will germinate freely when the soil gets warmer.

Carrots.—The main crop of Carrots should now be sown in a light, sandy loam. The long roots will penetrate deeply in a compost of this description. Stump-rooted varieties are best suited to heavy soils, which should be lightened by adding plenty of sand and wood ash. Make the rows 12 inches to 15 inches apart, and sow the seeds evenly. As soon as the seedlings are through the ground dust them with soot at intervals and use the hoe on frequent occasion to keep weeds in check.

Salads.—It is best to sow Mustard and Cress every other day in order to ensure fresh supplies. The seeds of outdoor Cucumbers may be sown now to ensure having fair sized seedlings for planting when the weather is suitable.

ORCHID NOTES AND GLEANINGS.

CYMBIDIUM LOUIS SANDER.

A flower of this grand new hybrid raised between C. Ceres (I'Ansonii × insigne Sanderi) and C. Alexanderi roseum (insigne × eburneo-Lowianum) is sent by the raisers, Messrs. Sanders, St. Albans and Bruges, who state that it was taken from a very small plant flowering for the first time. This first bloom measured four-and-a-half inches across and the petals were three-quarters of an inch wide, the segments being of extraordinary substance. The sepals and petals have a cream-white ground tinged with rosy-mauve and have lines of light rose-purple, which in the middle change to spotted lines of claret-red on a Primrose coloured ground.

The lip, which is among the showiest of those of Cymbidiums, is broadly ovate in front; it is heavily spotted with claret-red on a Primrose-yellow ground, the margin being white. The equally broad segments and fine substance indicate plainly C. I'Ansonii in its parentage, as did the fine C. Joy Sander (Pauwelsii × Ceres) shown by Messrs. Sander in their group on April 8.

The C. I'Ansonii imported by Messrs. Low and Co. and shown by them at the Royal Horticultural Society's meeting on May 23, 1900, has always been a puzzle. When Sir F. Wigan obtained a First Class Certificate for it on April 3, 1906, the parentage suggested was the natural hybrid Lowianum × Tracyanum, which was disproved by Sir Jeremiah Colman with his home-raised C. gattonense (Lowianum × Tracyanum); the many flowered forms of Sir Jeremiah's hybrid bore no resemblance to C. I'Ansonii, which, however, has varied little in the several plants imported. Thus there is no proof that C. I'Ansonii is not a species, for among the plants imported with it there is none that would suggest the combination by hybridity.

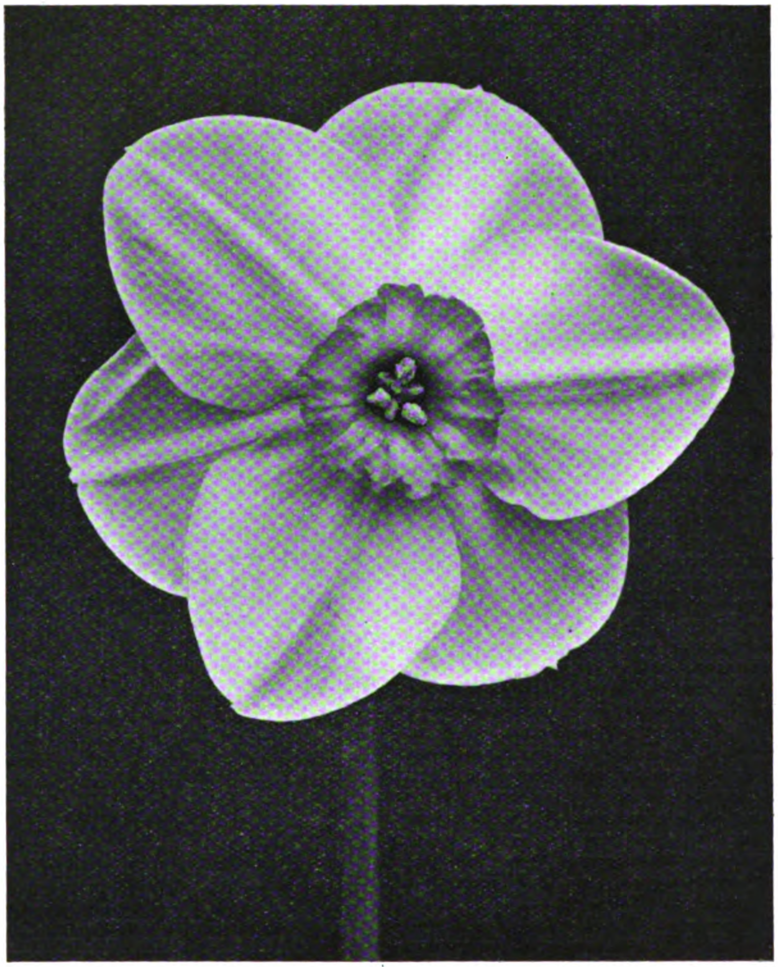


FIG. 98.—NARCISSUS TRABOE: A BEAUFIFUL WHITE BARRII VARIETY SHOWN BY MR. P. D. WILLIAMS AT THE LONDON DAFFODIL SHOW (SEE P. 229).

INDOOR PLANTS.

ALLAMANDAS.

Allamandas are amongst the best of all free-flowering, warm greenhouse or stove climbers, and are prized for their handsome, rich golden-yellow flowers in various shades and sizes. They make a grand display in a warm house, especially when the dense clusters of flowers hang loosely from the rafters of the roof. They are of easy culture, and when at rest during the winter require very little attention. Plants grown in pots, or planted out and flowered throughout the summer should be kept almost dry to ripen the wood, just giving the roots sufficient water to keep the plants from shrivelling. They should be cut back freely every season before they are started into growth. Allamandas grow and flower freely when planted out, and the shoots should be allowed to hang naturally from the roof rafters; the clusters of flowers of such plants, are larger, more robust, and the individual flowers of greater substance than those from specimens grown in pots.

The strong growing varieties may require a little pruning, thinning out the small, weak shoots to admit light and air to the plants growing underneath them. For general purposes, however, it is better to grow Allamandas in pots than in borders. They are especially useful on account of the many ways in which they may be grown with success as trained pot specimens, also as roof climbers

When growing and rooting freely they require a liberal supply of water, and when the flower buds are developing, a little liquid manure should be given the plants once a week.

The soil for planting should be specially prepared; remove some of the old soil and substitute a mixture of two-thirds rich turfy loam and one-third fibrous peat or leaf mould mixed with a liberal quantity of silver sand. Provide good drainage, using clean crocks and brick rubbish to prevent the soil getting sodden or sour.

In January or February the shoots of the previous season's growth should be pruned to within three or four buds, and during the next week or two the roots kept comparatively dry to allow the plant to rest before starting it into growth. Ripened shoots removed in pruning may be used as cuttings with the exception of A. grandiflora (true) and A. violacea, which do not root freely but need to be grafted on the strong growing species; A. neriifolia is one of the best species for the purpose, as it is of the least value grown as a specimen plant. In grafting, select healthy stocks and clean grafts. Grafted plants should be placed in a hand light or frame with only moderate heat and moisture; air should be admitted to the frame every morning for an hour or two. Shade the plants from light and sun, and be careful not to create too much atmospheric moisture. In inserting the graft place it as near the base of the stock as possible, and if convenient remove some of the surface soil near the stock to permit this to be done. When the grafts and stock are united admit air gradually to harden the plants.

Cuttings of the stronger growers root readily when placed in sandy soil in a frame in a moderate amount of heat and atmospheric moisture.

During the winter, when the plants are at rest, a temperature of 55° to 60° is suitable, but when starting them into growth it should be raised to 65° to 70° with atmospheric moisture. The following species may be highly recommended for cultivation, and their flowers are of shades of yellow, quite distinct from each other. A. grandiflora (true), a magnificent species, with beautiful, bright, canary-yellow flowers, produced in large quantities. It is very distinct in habit and a much weaker grower than the others, with smaller foliage. It is a most suitable subject for growing as a pot specimen, being very free flowering and adaptable for a small house. A. Hendersonii is one of the best of the strong-growing species, and is invaluable for exhibition purposes. The flowers have orange-yellow lobes, finely formed, with remarkably thick and wax-like segments. The plant begins to flower early and it possesses the excellent characteristic of continuing in bloom throughout the season. A. Williamsii is very free-flowering, with bright yellow flowers of medium size; it is most useful grown as a pot specimen. A. nobilis, with pale, yellow flowers, is a strong grower, suitable either for pot culture or planting in a border. A. Schottii has large yellow flowers, striped in the throat with brown; it is a strong grower and suitable for covering a large space under the roof of a warm stove or conservatory. A. Chelsonii has fine yellow flowers; it is a very floriferous and robust growing plant, suitable tor growing in pots or for planting out to cover a large space. A. magnifica is a beautiful yellow species, free in flowering, and very much admired. There are others, but those enumerated are the best. The distinct A. violacea has reddish flowers; it is not so showy as the others, therefore not much grown.

Allamandas are almost immune from insect pests, with the exception of a minute, yellow thrip which destroys and disfigures the young flower buds and leaves. The thrip may be kept in check by syringing with clear water and promoting plenty of atmospheric moisture in the house. *John Heal, V. M. H.*

HARDY FLOWER BORDER.

STENANTHIUM ROBUSTUM.

Those who have had the good fortune to see Stenanthium robustum in perfect condition, either in its native habitats or in this country, remember it always with deep delight. But there is an ominous silence regarding it in gardens where we would have expected to see it in perfection—places highly favoured with climate and soil and where the greatest attention is paid to the cultivation of the plants—and we must, I fear, come with reluctance to the conclusion that there is something about it which our climate, as a whole, does not suit, as it is seldom, indeed, that it flourishes for more than a year or two after planting.

I have seen it in a fair number of gardens, but the finest plants in bloom that I have ever met with were in the delightful garden of Mr. Beamish, at Ashbourne, near Cork, where it was planted near a little rivulet which supplied it with the moisture it appears to require, and where, in a sheltered position, and in that wonderful climate in the south of Ireland, S. robustum appeared to be happy. Whether it is still at Ashbourne I know not, but the picture of the plants with their drooping plumes of white flowers against the greenery, and in ideal conditions, is indelibly impressed on my memory. The general record of its behaviour is, however, of a different kind, and is usually to the effect that, even planted in the moist soil in which it delights at home, it will not long continue to give its flowers in profusion, but will bestow them grudgingly.

It comes from southern Pennsylvania and Ohio to South Carolina and Tennessee, where it blooms from July to August. Possibly it misses the brighter sunshine and warmth of its native land and cares little for our cloudy skies in autumn and our slow dawning springs. Anyhow, it is rarely a success and those who are tempted as I have been, with its beauty when exhibited in pots or growing in a few specially favoured gardens, will join with me in lamenting its dislike to favour us with its graces. To see a good plant, or, better still, a group of plants from three to five feet high, with their narrow leaves, their arching stems, with their noble plumes of flowers, greenish-white to begin with, then passing to purest white and generally finishing off with pale rose, is to create a desire to possess and to succeed with this elegant species. The plant appears to need a moist soil, and a warm, sunny position. *S. Arnott.*

FLORISTS' FLOWERS.

GARDEN CHRYSANTHEMUMS.

It is important to have young Chrysanthemums of the outdoor type in their permanent quarters towards the end of April rather than defer the work a month later, the more general time perhaps. Even if top growth has not developed much the roots will be active; and if dry weather sets in the plants will be able to withstand drought. There is, it is true, a risk of damage by late frosts; better this, however, than risks of drought. It is not likely that any part except the growing points of the plants will suffer, and this matters but little, when in the ordinary way the tips are removed to promote a bushy formation of growth early.

Plants that have become pot-bound seldom grow freely after being transplanted; their growth remains stationary for a time, whereas small, actively growing specimens proceed with their development unchecked unless they are touched by spring frost.

The ground for Chrysanthemums should be tilled deeply and afterwards made firm; it should not be overmanured, for rich soil results in gross, soft stems. A sturdy, healthy plant may be stimulated at the proper time, that is when the bloom buds have set and are swelling.

A distance of two feet from plant to plant is not too much when the Chrysanthemums are grown by themselves, but when arranged in beds or small groups for effect they may be put closer. Each plant should be set in a shallow, basin-like depression so that when water is applied it may reach the roots readily. When the plants are grown in rows the removal of a little of the surface soil each side of the plant is an easy matter. A neat stick to each plant will provide support which may be necessary in the early stages of its development. Subsequent details are keeping the surface soil open by hoeing and free from weeds, and dealing with insect pests, should they appear.

The Wells-Goacher type of outdoor Chrysanthemums, introduced some years ago, is ideal for cultivation in the garden. The plants bloom from August onwards, grow about thirty inches high, are valuable for bedding, and for furnishing large supplies of cut flowers. Polly and Goacher's Crimson are two of the best sorts of this type, and they have given several distinct forms by sporting, including Abercorn Beauty, Crimson Polly, Golden Polly (Florrie Wilkinson)—these of the former, and Bronze Goacher, Golden Goacher, and Mrs. J. Fielding of the latter. Others of the class, if less fine, are Fred, Carrie, Harrie, Willie, Leslie and Well's Scarlet. A white and a pink sort would be welcomed in the Goacher section, but, failing this we must select Roi des Blancs and Normandie, the last being just a week or so too late. Dick Barnes and Harry Thorpe may possibly be included in the very early group. I should also include the fine crimson Mrs. Wm. Sydenham. Most of the above-named sorts should have the earlier flower buds removed or blooms will open so early as July, a time when they are not wanted.

Single-flowered forms that bloom early are few, but outdoor singles are being rapidly improved. Brazier's Beauty, Amber Glow, Nathalie, Chieftain, Curlew, John Woolman and Sunstar will give good results.

The second division, as it may be termed, offers a wide selection of varieties, chiefly of the type grown by market growers, who freely thin the growths as well as the bloom buds to obtain specimen flowers. In some seasons these will open out-of-doors; but the risk from frost is great and some kind of protection should be afforded. This may take the form of glass or something of a waterproof nature, for damp is as damaging as frost. By stopping the plants early some of these semi-earlies develop perfect blooms early in September; generally, however, they bloom late in that month and the early part of the following month. Betty Spark, Cranford Pink, Cranford Yellow, Countess, Goldfinder, Harvester, Lichfield Pink, Lichfield White, Provence, Sanctity, September White, Framfield White, and Cissbury White, are a few excellent varieties. A little later, maybe, would come Almirante, an exceptionally useful sort with its forms named Alcadie, Yellow Almirante, and Red Almirante, Mrs. R. Hamilton, Pink Delight and Pink Profusion.

These remarks on garden Chrysanthemums would not be complete without some reference to a type for which cultivators are indebted in the first place to a French raiser who originated the pink variety Madame Marie Masse. Variation in colouring of this type is found in Horace Martin, Ralph Curtis, Crimson Masse, George Bowness, John M'Alpine and Robbie Burns. This is a hardy race of Chrysanthemums indeed, producing large quantities of bloom. These sorts grow where many of the forms mentioned above might fail; for this reason this class of Chrysanthemum is useful for borders, field culture in quantity, and villa and cottage gardens. *H. S., Woking.*

THE BEST BEDDING PINK ROSE

THOUGH perhaps the crimson Rose with full damask perfume is first favourite, the pink Rose, when fragrant, runs it closely in popular estimation, especially among ladies.

Pink Roses lend themselves better for indoor decoration and personal adornment, and these facts may weigh with the ladies in their choice. The colouring of pink Roses is enhanced by artificial light, consequently they show to advantage on the evening dinner table. Even cold pinks, not especially attractive in daylight, appear quite delightful at night, for artificial light removes from them all tendency to blueness.

Needless to say. "the pink of perfection" in bedding Roses has not yet been attained. We are, perchance, further from it than in the case of red Roses. Mme Abel Chatenay made a bold bid for it, and so far as the actual flower is concerned, the ideal has well-nigh been reached. It is bordering on the hypercritical to find fault with Mme. Abel's bloom. The only defect one cares to mention—a minor one—is that the stalk is a little too thick for the size of the flower, or to put it the reverse way such a stout stalk might have carried a larger bloom with advantage. Otherwise it is a finely-shaped flower with full petalage and plenty of fragrance, of a delightful shade and with a stem so firm that practically every bloom is held erect. In addition, almost every flower comes of the right shape and rain does not spoil the blooms. Then it lasts well in a vase and is slow to go "off colour." These qualities were quickly discovered by the trade, and no Rose, one imagines, has been grown more extensively under glass to supply cut blooms for the market.

But, alas! the habit and constitution of the plant leave much to be desired from the bedding aspect. It is inclined to die out after a few years and so needs more renewing than most popular varieties. Then it is prone to put most of its strength into one basal shoot, and thus is addicted to the one-stem habit which is the reverse of the ideal for bedding. Its foliage is also a weak point—too sparse and small for the size of the plant and flower.

Mme. Abel Chatenay may be said to have dominated the pink Rose section for the first ten or fifteen years of this century. Certainly it has had the largest share of display in the florists' windows. Ophelia (and its sports) is now displacing it, but this Rose is not really a substitute as its colouring is different. One might describe it as an amber blush and not a real pink.

Mme. Abel Chatenay emanated from the Lyon firm in 1895, and may be reckoned one of Mons. Pernet-Ducher's most successful creations.

The colouring of Mme. Abel Chatenay is generally described as salmon-pink, and it is as far towards the salmon shades I shall allow myself to go. This review is more concerned with pure pinks than with salmony and coppery varieties. Mme. Abel Chatenay may be considered near the border line.

It may be asked, is there any pink H.T. variety suitable for beds which is vigorous, floriferous, and in possession of the three primary qualities of a Rose bloom, viz., pleasing colours, fragrance, and good form; and yet has no bad fault? I hardly think there is one combining all these desirable characteristics, unless it be among the new comers such as Columbia, America, or Humboldt from across the Atlantic.

The first named certainly had promise and has been taken up by the cut-flower trade, but it may disappoint on the score of not being free enough for bedding. Then it is gratifying to find among recently produced British seedlings a number of fragrant pink Roses with flowers of superb shape on stiff stems. It is to be hoped one or more may fulfil the above conditions, though one fears that their very fulness may militate against their qualification for bedding in the wetter, western parts of these Islands. Those of Mrs. C. E. Russell parentage are hardly likely to succeed. Mrs. Russell in my experience in the North-west of England is most disappointing. The flower bud takes so long to mature that the chance of rain rotting it is very great. There may be more hope for such new Roses as Mrs. Henry Bowles, Una Wallace, Elsie Beckwith and Joan Howarth. An exquisite Rose which has now been on trial for three or four years—Mrs. Henry Morse, the so-called glorified Chatenay—is almost ruled out for beds on account of its liability to mildew. Killarney, much to the fore as a bedding pink Rose ten or twenty years ago, has well-nigh passed out of cultivation for the same reason.

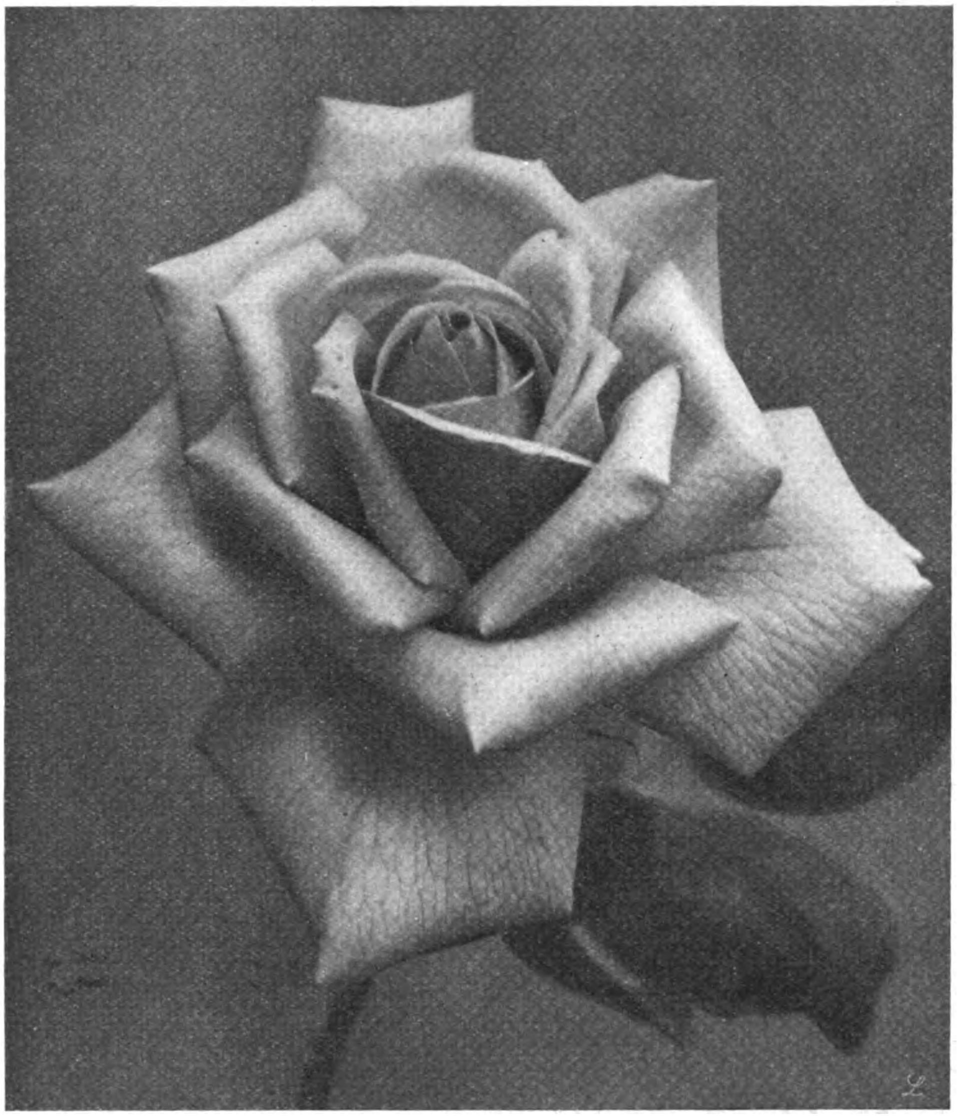


FIG. 99.—ROSE MRS. BRYCE ALLAN.

Turning now to the well known pink varieties, a word or two on that wonderful old Rose, La France, may not be out of place. She is still unsurpassed when at her best, making with Gloire de Dijon and Maréchal Niel that incomparable trio which France produced during the middle of the last century. Each is still supreme in its own line. La France has so many excellent qualities—beautiful shape and colouring, freely scented, vigorous, and good habit—that it is a pity this variety is not suitable for beds, at any rate, in this part of England, for only in exceptionally good weather are its blooms brought to perfection. Almost nine out of ten of its flower buds fail in a normal season. They either "ball" and rot or open in an unpleasing fashion. Somewhat better results may be obtained from standards, and, strange to say, a certain poverty of soil appears to favour good blooms.

Passing on to the beginning of this century two scented pink Roses appeared which have considerable merit as bedders — Gustav Grünerwald and Dorothy Page Roberts. The chief defect of the first is want of stiffness in the flower-stalk—the blooms are apt therefore to be somewhat pendulous. Dorothy Page Roberts, on the contrary, carries its flowers erect. Its petals, though few, are of great substance and its leaves of firm mildew-resisting quality. Its faults are minor, such as rather a gap between its flowering periods and a somewhat too tall and upright mode of growth for small beds. It is fragrant but not markedly so.

If fragrance in a pink bedding Rose is the chief requisite, then the fairly recent variety, Mrs. Bruce Allan (Fig. 99) is surely indicated. As regards perfume it is to pink Roses what General McArthur is to red sorts; but the General has otherwise more distinction. Mrs. Bryce Allan is a good grower, but its colour may not be up to modern taste, being that of the old-fashioned rose-pink, and the blooms, moreover, are flat centred. *J. P. Carlisle.*

(To be concluded).

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THE PLANT COMMONWEALTH AND ITS MODE OF GOVERNMENT.*

THE plant commonwealth of my discourse lies within the contours of an individual plant—Rose, Lily, Grass, Oak tree or any other. The physical features of the Commonwealth have been surveyed and are well known. Notwithstanding their differences in outward aspect all the members of the commonwealth—root, stem, leaves and flowers own a common plan of organisation. As the human being is the unit of a commonwealth of nations, so is the cell or protoplast the unit of the plant commonwealth. Just as certain men have the appearance of simplicity, so has the plant cell—a mass of nucleated cytoplasm—bounded by a solid wall of cell wall substance and of such small dimensions that one thousand cells might be comfortably placed side by side along the diameter of a penny piece. Yet, as is the case with man, the simplicity of the cell is illusory. It lives, feeds, respires, grows, and does many different kinds of work. Nor does it live unto itself alone. In all its manifold activities the cell influences and is influenced by other of the well-nigh innumerable cell units of the commonwealth. Indeed the messages which by word of mouth, by post and telephone, telegraph and wireless, pass between members of our own commonwealth and leave us but little peace, are rare by comparison with those sent and received by the living cells of plants. Throughout life they are always listening in. In the simplest plants of all, unicellular plants, the cell is the commonwealth. So is it in the highest (multicellular) plant at the moment of the re-birth of the individual within the ovary of the flower of the mother-plant. All plants begin life each as a single minute mass of semi-fluid, nucleated protoplasm. Every activity evinced by this living particle shows alike the diversity of its unrecognisable parts and the integrity, that is, the individuality of the whole, and throughout life diversity of activity and oneness, or individuality, alike persist.

From simple raw materials the cell protoplasm restores and augments itself, and gradually, stage by stage, the plant carves out its body from this increasing mass of living substance. The primal cell grows and divides to form two daughter cells, each like the mother cell consisting of nucleated protoplasm invested by a wall or coat of cell wall substance. Yet, though a solid wall divides them, the daughter cells are not isolated from, but remain in communication with, one another. For in the first place the separating wall is very thin and soluble substances may pass across it readily; and, in the second place, fine strands of cytoplasm radiating from the central mass penetrate into pits in the cell wall and joining, or all but joining, with corresponding strands from a neighbouring protoplasm maintain vital touch between the cells. So in like manner the daughter cells divide and the cells to which they give rise maintain vital contact by their protoplasmic connecting fibres till after many divisions the embryo is recognisable within the swelling seed. If by some magical liquor the cell walls and all the non-living contents could be dissolved away and the transparent semi-fluid protoplasm made hard and visible the contours of the plant would still be recognisable.

Not all of the cells which compose the body of the embryo plant remain unchanged. Some it is true appear to do nothing else but grow and divide. They are the producer or embryonic cells destined throughout the life of the plant to carry on the work of cell-formation. Groups of them are to be found at all ages of the plant in the growing point of the root and in the buds on the stem. In long-lived plants after a thousand years and many thousands of divisions these embryonic cells still retain their powers of division and cell-formation. Theirs is the gift of perennial youth; they never grow up. Once established a growing point exercises a dominating influence over the broods of cells which it throws off by the division of its component embryonic cells. In some way as yet unknown it influences or perhaps determines the morphological fate of its offspring. For, as has been shown recently, a minute fragment of a root tip 1/25 inch in thickness if cut off and fed with mineral salts and suitable proteins grows, divides, and in the cells which it produces the same differentiation appears as in the normal root. Thus in a far-reaching sense is it true that the hand that rocks the cradle rules the world. Other cells of the plant body soon cease to divide, but undergo no very great change of form. They become the general working cells of the body. Others assume curious and characteristic forms and, grouped together, constitute gangs of cells—skilled cellular artisans—to each of which some special task is assigned. Yet other cells or groups of cells undergo greater change of size and shape. For example: those destined to give rise to the woody vessels along which sap passes from root to stem, grow wide and very long, join above and below in single file, with cells like themselves, build thick and woody longitudinal walls, often beautifully sculptured and, losing their contents and dissolving away their cross walls, form long, uninterrupted tubes—mere aqueducts. It requires but little imagination to realise how imperative must be the constraint brought to bear on those wood-forming cells to induce them thus to immolate themselves for the benefit of the plant commonwealth. Their fate suggests that as the commonwealth develops, the cellular units suffer more and more curtailment of liberty. Each is constrained to endure a limitation of freedom and each imposes a limitation on that of other units of the plant body. In this compromise between liberty and social obligation a new and higher unit is fashioned, the individual plant, that is, the plant commonwealth. If this way of regarding the individual be correct it must be of interest to explore the nature of the messages which, passing between the members of the plant body, bind them together and determine the subordination of the cells and their integration into an individual. On these trifles "light as air but strong as iron"—the existence of the commonwealth is based. It is of the origin, nature, and effects of those messages that I propose now to speak.

I know of no better way of approach to this task than by describing—at the risk of the smile it may evoke—the strange things that happen when a Potato is peeled. An immediate effect of the operation is the setting up of a state of fever. During this wound fever the temperature of the tissues near the cut rises rapidly as a result of increased cell respiration. The wounded cells die; those of the layer next to them, no longer hemmed in on all sides, find some relief from the bondage which held their activities in subjection. They grow out to form bladder-like or tubular projections. In the welter and confusion due to loss of touch with other cells these cells break rank and become a law unto themselves. Their growth is, however, limited and aimless, and presently withering and turning brown their dead remains form a thin, dry skin over the wound. Behind these broken ranks the orderliness of behaviour of the cell layers is maintained; but it is a new order which these cells obey. They form a new front. Dividing rapidly and in a regular manner these cells come to present the appearance of rows of microscopic bricks. When the originally single layer of dividing cells has formed several layers the cells of the outermost form thick corky walls, lose their living contents and come to consist of mere empty shells fitting as hollow bricks might fit closely one with another. Thus by the formation of wound tissue is the wound healed. Until recently nothing was known of the provenance of the new orders which stir the cork-forming cells to activity and, releasing them from obedience to previous orders, cause these cells to renew their youth and reassume the power of division. But it is now known as a result of investigations made by Professor Haberlandt that the renewed activity is called forth by messages from the stricken and dying cells. The origin and nature of these messages may be determined by very simple experiments. For example, if the bulbous stem of a Kohl Rabi (Turnip-stemmed Cabbage) be cut across all the changes just described may be observed to take place. But if the cut surface be rapidly and thoroughly washed with a stream of water, little or no cork formation occurs; the wound does not heal. When, however, the washed surface is covered with a layer of brayed-up cells of Kohl Rabi tissue, cork-formation proceeds even more vigorously than it does in the unwashed wound. Whence it is to be concluded that messages are sent by the wounded cells and that the messages are of a chemical nature. As they die these cells liberate some substance which, diffusing into the living cells, quickens them to activity and provokes their division. This stimulator of specific change may be spoken of as a wound hormone. Its presence may be demonstrated experimentally in many different kinds of wounded tissue, and in none better than in the succulent leaves of Sempervivum and Sedum. Leaves of these plants may be readily torn asunder without mechanical destruction of their cells; for the cell walls between the cells give and split so that the protoplasm of the cells remains intact. Now it may be shown that whereas by cutting a leaf and thereby destroying numerous cells, the cell-division provoking hormone is produced, by tearing it the hormone is not produced. The wound-hormone—this message of healing—is sent out by the dying cells. Thus may plants rise by stepping stones of their dead cells to higher things.

(To be continued.)

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* Discourse delivered at the Royal Institution on Friday, March 21, 1924, by Sir Frederick Keeble, F.R.S.

NOTICES OF BOOKS.

The Little Garden.

Hortulus, or the Little Garden. A Ninth Century Poem by Walafrid Strabo. (The Stanton Press). Such is the title of a very attractive small quarto book printed with great taste in old-fashioned style in red and black.

Following the title-page, on which a quaint old wood block depicts a monk gathering plants in a garden, is another page whereon we read, "Hortulus is here for the first time done into English verse from the Latin by Richard Stanton Lambert and decorated with cuts on wood by Elinor Lambert. MCMXXIII. Edition limited to one hundred and thirty-two copies of which this is ——."

The introduction gives a short account of Strabo, who was born about 809 A.D. and entered the Abbey of Richenau in Swabia, and later became Abbot. He died forty years later leaving behind him a number of elegant poems and several prose works. Among them was the poem here printed, *De Cultura Hortorum, or Hortulus*—"The Little Garden," as it is more often called. The poem, as we are told, was exceedingly popular in the Middle ages, and was first printed at Nuremberg in 1510.

There is a dedication to the Abbot of Weissenburg, and then begins the opening chapter of the Hortulus—How to make a Garden. Quaint little wood-block illustrations of the objects dealt with and the names of them in red are at the head of each little poetical description.

Before I enumerate the plants thus dealt with, I will just quote from the heading "Perseverance and its Reward," the following injunction—

"The little crop soon by occasional rains
Is sprinkled. At night the moon kindly sustains
Each seedling with dew. But if drought should prevail,
I must boldly step into the breach with a pail.
For fear lest the thirsty plants wilt in the sun,
To and fro with full buckets of water I run.
But it must not be poured in a casual spurt,
Or the seeds will get scattered, the stems suffer hurt,"—

and so on.

We are then introduced to the various subjects cultivated by this old monk, and are told—

"But now I must sharpen my wits and my speech,
And try to describe by its name and to teach
The virtues of every plant that I grew,
That the least may have honour, where honour is due."

The subjects named and dealt with are the Nettle, Sage, Rue, Southernwood, Pumpkin, Melon, Wormwood, Horehound, Fennel, Cornflag, Borage, Chervil, Lily, Poppy, Clary, Costmary, Mint, Penny-royal, Parsley, Betony, Agrimony, Ambrosia, Cat-Mint, Radish, and Rose.

The book is tastefully bound, the typographical execution is beyond criticism, the antique paper with rough uncut edges affords a very fine margin to each page, and all combine to make the work a charming addition to the garden bibliophile's library.

I think the price is one guinea, but it is not stated. The colophon printed on a page by itself with a woodblock device, informs us the book was "Printed by Hand & sold by Richard & Elinor Lambert at the Stanton Press, 132 Chalfont Avenue, Wembley Hill, Middlesex. Finished January 5, 1924. *C. H. P.*

TREES AND SHRUBS.

PRUNUS AMYGDALUS VAR. MACROCARPA IN RICHMOND PARK.

Situated on a slight slope a little to the south of White Lodge in Richmond Park are several specimens of Prunus including two of Prunus Amygdalus var. macrocarpa. These two Prunus had only a few flowers open on the first Sunday in April and are a week or so later than the common Almond, which is in full flower there.

The taller of these two trees has upright leading branches that ascend thirty feet or more, and close in habit, but they are bare of lower branches. The tree is absolutely covered in flower buds which on opening present a charming Picotee or Apple blossom coloured edge the petals becoming pure white when fully open; inside and at the base below the stamens the colour is deep orange. The individual flowers measure one-and-three-quarter inch across and the petals were almost double the size of those of the common Almond. Such trees make only a few inches of growth annually, and the short shoots are not the best material for propagating purposes, such as grafting or budding. A plantation and some Cedars give a splendid background to this small colony of Prunus. *C. F. C.*

ACER OPALUS VAR. OBTUSATUM.

The Italian Maple, A. Opalus (syn. A. opulifolium), and its varieties, are among the most distinct and ornamental of large trees in early spring, producing their blossoms with unerring freedom. The flowers are pale yellow and freely borne in short-stalked corymbs.

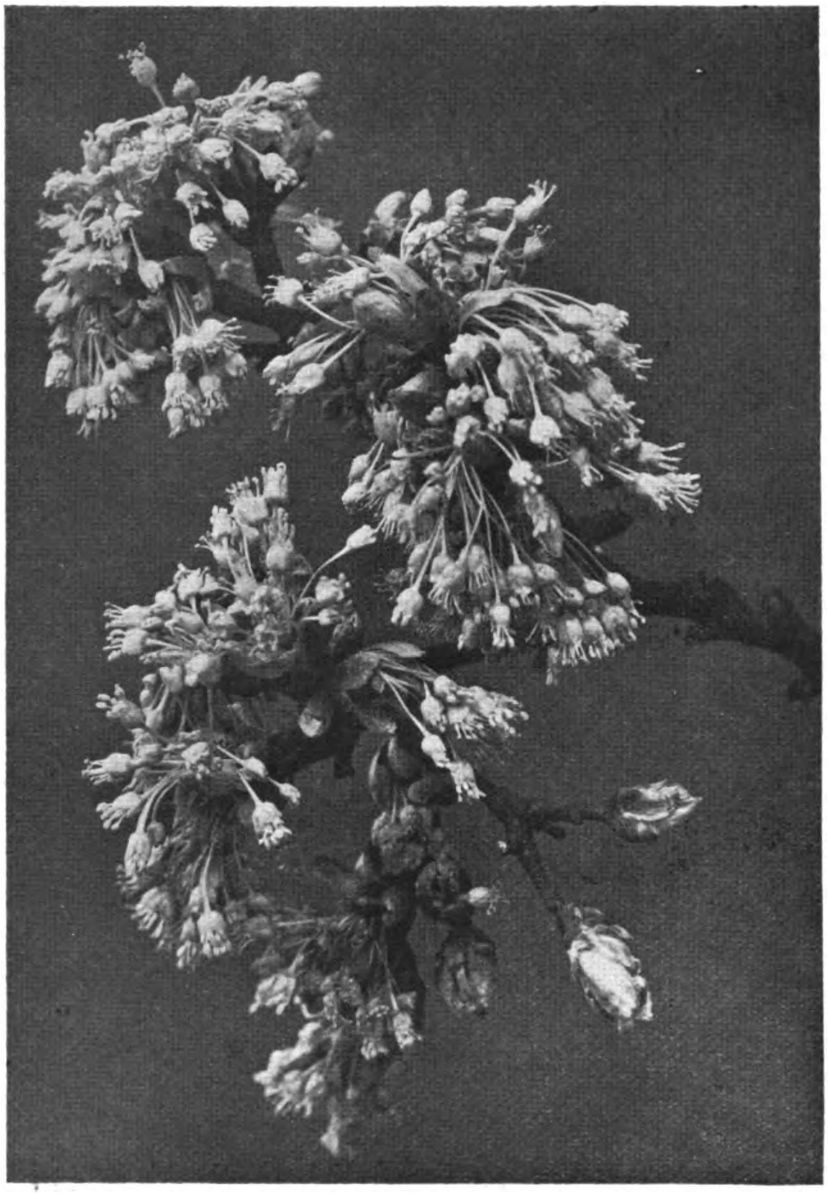

FIG. 100.—FLOWERING TWIGS OF ACER OPALUS VAR. OBTUSATUM.

The variety obtusatum, (Fig. 100) the Hungarian Maple, is the best-known form and is a robust, free-growing tree, forming a round-headed specimen up to forty feet or more in height. The leaves are rather larger than those of the type, roundish cordate, five-lobed, downy beneath, with a whitish or rusty tomentum. It is a native of Hungary and Croatia, and the year 1825 is given as the date of its first introduction to Britain; it has considerable value for ornamental planting as a lawn or park specimen tree. A. O. obtusatum is sometimes catalogued as A. hybridum. *A. O.*

RHODODENDRONS.

GARDEN RHODODENRONS.

(*Continued from p. 222*).

(5). *Selection.*—Selection will be made with a view to including as many types as possible, subject to the reservations given. There are scores of named species which so closely resemble other species in general appearance that only an expert could distinguish them apart; a rival expert might fail to uphold the distinction. In other words, there are more names than Rhododendrons; we are weighed down and oppressed with names. There is a perfect fog of them through which the species dimly loom. Apart from that, there are species which clearly are distinct, but do, nevertheless, closely resemble each other. Which is the best garden plant, time will show. Meanwhile, one is sufficient.

The advantage of having plants in flower for three or four months in the year by means of a sequence of bloom on different species is obvious; and the many decorative effects which may be obtained in the garden will be borne in mind.

If there is one complaint which might fairly be levelled at Rhododendrons as a class it is that, out of flower, and especially in the winter, they are drab-looking objects. In winter the leaves curl up and droop, so that only the upper leaf surface is exposed. However beautiful the under surface may be, if it is invisible it is wasted; and the upper surface is generally a sombre and monotonous green. Again, only in a few species (mostly tender) are the fruits anything but dull and pawky; while their amorphous figure is as uninspiring as that of a fat dowager. Thus, generally speaking, Rhododendrons are not fair to look upon in the winter. A more serious criticism is that, with few exceptions, the Rhododendrons are without scent. Now fragrance is a most desirable quality in a shrub. True, the "Maddeni" Rhododendrons are all fragrant; but they are too tender to be of much account. A much more important group with fragrant flowers are those which come under the heading of "Fortunei." These are not only hardy, but exceptionally fine plants. No collection would be complete without at least one or two representatives.

Apart from these are the species with aromatic foliage. Most of them are sociable little chaps, belonging to the noble family of "Cephalanthum." They cover the moorlands, and on a hot day, scent the air for miles. On the other hand, in R. hypolepidotum we have a species, the odour from whose foliage is disgusting.

In fragrance and winter decoration, then, the Rhododendron stands condemned; and despite its almost unlimited powers of variation, in size, shape, and colour, it never climbs. But enough; comparisons are odious. One cannot expect everything, even of Rhododendrons; doubtless they are not the perfect shrub—but what is? They give a magnificent display of bloom for three or four months in the year; the breaking leaf buds crest them with silver and jade. No other genus, except England's own flower, the Rose, does more.

A few species do give special decorative effects out of season. Many are worth growing for their foliage alone. The cheerful green of R. Thomsonii and its allies, the white under surface of whose foliage is more apt than most to be displayed in winter, is a case in point. The smooth, shimmering, tawny-purple trunks of R. Mackenzianum and R. gymnogynum (the latter resembles bottle glass) are particularly handsome. The purple capsules of R. fulgens, and the downy blush capsules of R. Edgworthii (the latter, unfortunately, not hardy), are an oasis in a desert of dull uniformity; while the long, slender, pod-like fruits of R. sino-vaccinioides turn almost scarlet (till the shrublet with its Box-like leaves resembles nothing so much as an Aeschynanthus), and the very immensity of the capsules of R. sino-Nuttallii compel admiration. But as neither is hardy nor in general cultivation, we need shed no more tears over them; and it must be confessed that, for autumn display, the Rhododendrons are a dull lot.

The best and most showy species of proved constitution will probably be found amongst the series 'Barbatum,' 'Campanulatum,' 'Campylocarpum,' 'Cephalanthum,' 'Cinnabarinum,' 'Decorum,' 'Falconeri,' 'Fortunei,' 'Grande,' 'Haematodes,' 'Heliolepis,' 'Lacteum,' 'Neriiflorum,' 'Oreotrephes,' 'Saluenense,' 'Sanguineum,' 'Selense,' 'Souliei,' 'Triflorum,' 'Taliense,' 'Thomsoni' and 'Virgatum.' This ought to offer variety enough to please the most fastidious. If even this is too overwhelming—and it includes nearly half the recognised series with nearly four hundred species, we might confine our attention to a dozen moderate-sized species chosen from the following sections: Barbatum, Campanulatum, Decorum, Fortunei, Lacteum, Neriiflorum, Oreotrephes, Souliei, Triflorum, Taliense, Thomsoni and Virgatum—one from each. There are on the other hand many Rhododendrons—some of them whose names are household words, which the unskilled, the beginner, and the poor man should avoid like the plague. They are more tender than true. They have no constitution. The Ides of March are come. Beware of 'Arboreum;' take heed of 'Stamineum'; come not near 'Irroratum'; have an eye to 'Vaccinioides'; trust not 'Maddeni'; 'Brachyanthum' loves thee not. To which comprehensive warning may be added the fact that 'Trichocladums' are not pretty.

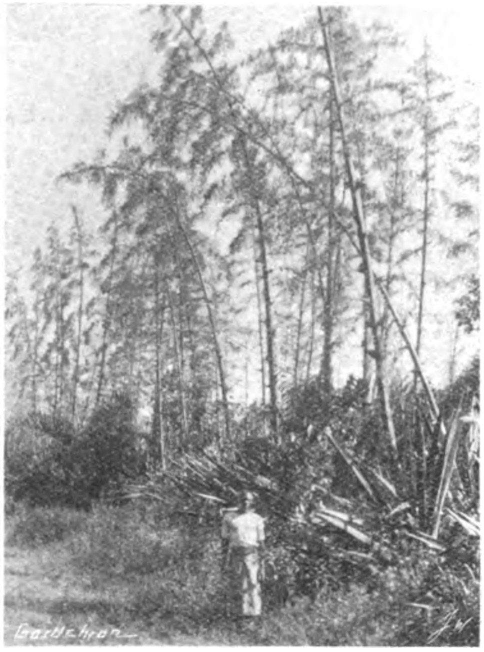

FIG. 101.—FURCRAEA GIGANTEA IN UGANDA.

What to grow must, however, depend on several factors. The amount of ground available is important and the amount of money to spare is not altogether irrevelant. Then there is the question of soil. The lord of many acres will not play about with drivelling little under-shrubs when he can mass trees. But these notes are not written for the landlord, but for the tenant, for that mythical average person (whether in the street or on it) who owns a small garden of say two roods, one rod (pole or perch), and a lawn.

Every Rhododendron has a minimum flowering age; but because a particular species flowers in this country at the age of say ten, it does not follow that under more favourable conditions it would not flower younger. If, however, a newly introduced species flowers for the first time more or less simultaneously at several different places, that is, presumably, its normal flowering age.

Rhododendrons flower when from three to twenty years of age. A few species have been known to flower in their second year, but that is exceptional. Generally speaking, the smaller the species the younger it flowers, and *vice versa.* Hybrids usually flower sooner than the species from which they are derived.

The cost of a plant brought from the nurseries will, of course, depend partly on its age, as well as on its degree of rarity and excellence. If the buyer wants his plants to flower within a year he must buy them of a certain age; though it is not possible in the case of a new species to say at what age it will flower in this country. Nor, because a plant flowers one year does it follow that it will flower in the following year. It depends. But the plants are sold rather by size than by age, and the man who is keen on his plants is advised to buy them rather young, if possible, and wait patiently for results. *F. Kingdon Ward.*

(*To be continued*).

FURCRAEA GIGANTEA IN UGANDA.

This plant, the source of Mauritius Hemp, is well known to those in this country who are interested in Succulent plants. The accompanying photograph (Fig. 101) was taken in Entebbe (Uganda) Botanic Gardens. It shows a block of Furcraea "poling." The cultivation was taken up in connection with a scheme for clearing the lake-shore of jungle to eradicate tsetse-fly. Among other plants experimented with to keep jungle down was Furcraea. For this purpose it was not a success. The plants poled or flowered at three years of age, and as poling entails the death of the plant, its short life ruled it out for permanent or semi-permanent cultivation. The extraction of fibre, it was found, was unremunerative so that it would not pay the cost of replanting.

The tall graceful "poles" are very ornamental, and although it may appear from the photograph that they are in flower, the specimens illustrated are long past that stage. Their feathery appearance is due to the hundreds of sprouting bulbils on each stem or pole. The flowers are inconspicuous, seeds do not mature, but bunches of bulbils develop at every joint on the flower spike, and produce leaves a few inches long before they drop to the ground.

The clearing away of this dense growth proved a distinct problem. Each plant with its leaves, pole and massive base weighed hundreds of pounds. When hacked out they would not burn and would take years to rot. An easier way to clear them seemed to be to leave them until the old plant died. This, however, took a very long time, and, in the meantime, the dropping bulbils rooted and grew apace into such an impenetrable thicket that the task was heartbreaking. There was only one easy way of getting rid of the Furcraea, and that was by allowing the jungle to grow up and stifle it out. This process took a very few years.

The experiment was, I fear, a rather costly one, but it showed that considerable care must be exercised in planting up exotic plants in any quantity until it is known how they are going to behave in their new home. It also showed that, robust as the Furcraea is, and prolific in reproduction as it proved to be, it was no match for the wild growths of the country, when the protective hand of man was withheld. Strange as it may seem, the principal agents in its destruction were the soft and tender climbers of Cucurbitaceae! *E. Brown, Hillside, Doddington, Sittingbourne, Kent.*

ALPINE GARDEN.

SOME RARE CAMPANULAS.

In the hard granites of the Cottian Alps, above Pinerolo (Italy), there grows in the cracks of the walls and rocks the most curious of all Campanulas, C. Elatines. Its distribution is not yet well known. While abundant at the north-eastern foot of the Monte Viso, it has been said to grow in Istria, near Fiume, in Lombardy, and in the Dauphiné. This is all wrong and, for the Lombardian station, it is certain that a confusion has been made between its cousin C. elatinoides. I found C. Elatines in the savage valley of Valprato (Canavese) in the Graian Alps, north of the Cottian Alps; but it is not abundant there; its chief place is at the foot of the Viso. It is a beautiful plant, with "its long brittle arms running out from the fat stock, from amid the tuft of small Ivy-shaped, pointed leaves, scalloped and crimped, and either grey with down or perfectly smooth and glossy. The branches hug the rock, and are set all over with a profusion of big flat stars in a very rich deep tone of clear violet-blue." So writes Farrer, and I quite agree with him that it is much lovelier than C. garganica, of which it is indeed so much the mother that C. garganica in all its forms has now been reduced by many authorities to a mere variety of C. Elatines. The last is far more elegant in growth and less leafy, with flowers comparatively larger, and of a much deeper blue, carried on sprays more fine and dainty. Of course it flowers much later, from the end of September until November, and grows only on shady rocks. We plant it here on the north side of our wall garden or in a hole pierced in the perpendicular side of a pot. It is easy to propagate by seeds, which are as thin as those of Saxifraga.

Its near relative, C. elatinoides, grows in some natural grots or holes in the limestone alps of Lombardy, near Bergamo. I found it there, always hidden and protected against rainwater, and it is as easy to extract as C. Elatines is difficult to get out. It flowers in July—September, has bigger flowers, much lighter in colour, with flannelly, heart-shaped foliage, bigger than that of C. Elatines. It is of very easy culture in sunny places as well as on north aspects.

In the same Bergamose Alps, and especially on the Col de la Presolana, above Castoine, the limestone rocks are covered in July to September, with that beautiful Bellflower called C. Raineri. This pushes its abundant stolons in the rocks and, as does C. pusilla, often covers the whole with a compact carpet of lilac-blue flowers, which are really little cups. I, once, being very thirsty and finding no water, drunk the dew of the morning from a multitude of its little cups and thoroughly quenched my thirst! Why is this plant so seldom seen in gardens? Its place is in full sunshine, at least, in England, and in a wall or in crevices of a rock where it soon sends out its running roots on all sides.

Campanula Morettiana is another charming plant rarely seen in gardens, and this is quite comprehensible. It grows in the Dolomites, just as does the C. Elatines, but only on chalk, and there it haunts the smallest crevices where it is very difficult to get at. As seeds form very late in the season it is not easy to introduce the species to our gardens. We tried it here in our holed pots and have succeeded only with a few plants. We hope, however, to be able to grow it in our jurassic gardens at St. Cergues, where all these kinds of Bellflowers do well, and hope also to get seeds of it.

C. Allionii (Fig. 102) is a very well-known beauty which is also known as C. alpestris. Its nice "Canterbury" bells hang solitarily on the stem; but sometimes (though rarely) the stem is many flowered. I once found at the foot of the Mont-Aiguille (Dauphiné) some large cushions of C. Allionii which I first thought to be C. speciosa of the Pyrenees, as the stem bore six or even seven large, deep violet coloured flowers. This I never saw anywhere else. C. Allionii is of easy culture but must be grown as a moraine plant. It is easily propagated from seeds, which it gives abundantly.

There is an exquisite little gem growing on the Simplon Road, and in that rich group of the eastern Pennine Alps, from Saas to Binn and from Belalp to Macugnaga; I mean C. excisa. The first time I found it, nearly forty years ago, I was rambling above Saas Ground with the late Sir John Lubbock (Lord Avebury) and we suddenly came upon a stoneheap quite covered with this delicate and delicious little Harebell. The excised corolla, the beautiful, light lilac colour, the graceful leaves and stem, all made a great impression on my friend who became enthusiastic of this little treasure and could not forget that sight. Along the Simplon Pass the plant haunts all the stone-heaps made by the road labourers on both sides of the road and covers them with its beautiful carpet. The plant is rather difficult to keep in our limestone country. It needs a sunny position on a granitic wall or on a perpendicular slope in the rockery and fears the lime, being one of the most calcifuge plants I know.

The yellow-flowering group of Campanulas offers a curious plant in Campanula petraea. This I had obtained long years ago (in 1887) from South Tyrol; it flowered in my old wall at Plainpalais and died. I never secured it again from Tyrol but, on a lovely morning when on the high roads of the Val Esteron (Maritime-Alps) I found it suddenly before me. It was in a chalk wall facing south, above the road, and I could reach it easily by climbing up the the rocks. It has certainly not a brilliant flower and I do not believe that it will ever be popular. Farrer calls it "a great ugliness." The yellow tufts, pressed in heads, the curious nature of the flannelly leaves, and the light perfume of the flowers, if they do not make the plant attractive, make it one of great interest. C. petraea should be planted in a wall, very sunnily situated, and, if possible, facing south. *Henry Correvon, Floraire, Geneva.*

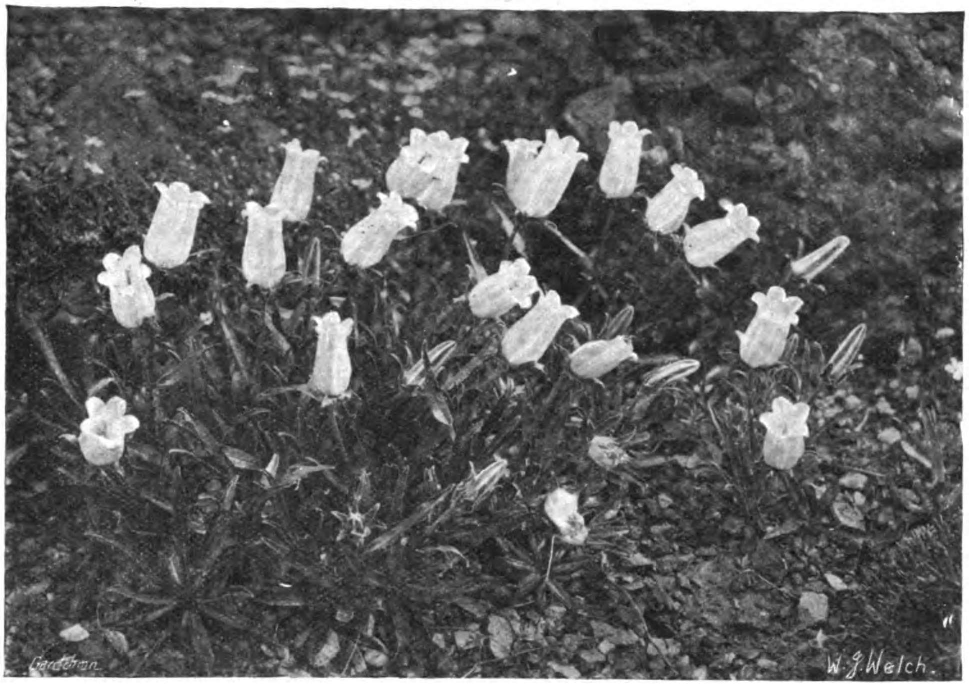

FIG. 102.—CAMPANULA ALLIONII.

CAMPANULA TURBINATA.

Of the dwarf Campanulas closely related to the variable Campanula carpatica there is none which can be said to be more attractive than the true C. turbinata. It is not uncommon to find that other Campanulas—forms of C. carpatica with flattish flowers—have been distributed under its name. The real C. turbinata is, however, quite distinct though much scarcer now than twenty or thirty years ago, when it was to be found in the comparatively few good collections of alpines in this country.

It is a charming plant with rather hairy leaves, forming a flattish mass slightly above which rise the big, flat china-blue flowers, only some six inches or so above the soil. A noteworthy feature in this Bellflower is that the flowers are always borne singly on a stem. Some of the forms of C. carpatica possess the same formation of flower, but have not the hairy foliage and the solitary blooms of this species, which is also dwarfer. C. turbinata is by no means plentiful, and my own plants were lost when removing them to my present garden between two and three years ago. Some day I hope to grow it again. I do not know the origin of C. turbinata. *S. Arnott.*

HUTCHINSIA ALPINA.

Common as it may be, familiarity breeds no contempt for this little Crucifer, with the whitest of all milk-white flowers, and it is the most willing and easy plant to grow. For any partially shaded place, or even in full sun if the soil be fairly cool, H. alpina is a delightful plant, covering the ground with a 2-inch. carpet of dark, glossy-green, feathery foliage, which proves such an admirable setting for the multitude of flowers that develop throughout the spring and the greater part of summer.

For early bulbs of moderate stature there can be no better ground-work than this plant; it may be used for edging, or grown in masses at the front of the border, but it is never, I think, quite so happy as when in the rock-garden or about steps.

H. alpina is, of course, indestructably hardy, and it has a lesser counterpart, with shorter and ampler heads of flowers and a denser foliage, known as H. brevicaulis. *A. T. J.*

PALMS OF THE RIVIERA.

There are a few Palms which, under ordinary conditions, have proved hardy all over the Riviera, when sheltered overhead by the foliage of evergreen trees. Several of the species have, however, suffered, and some were killed west of Nice by the extraordinary frost of December 17, 1920, when the temperature fell so low as 8° C. Although this very low temperature only lasted a few hours it must be remembered that such a severe frost had not occurred previously on the Riviera since 1820, just one hundred years before, and that although the temperature did not fall so low east of Nice, yet even in the sheltered situations where frost is hardly ever registered, the most tender plants suffered.

This experience of practically an absence of frost on that part of the Riviera, situated to the east of Nice, has always been confirmed, and it cannot be too much insisted upon that persons who intend to cultivate plants which are very tender should choose this practically frostless part of the Riviera, where numerous species grow well but which can only be cultivated with the greatest difficulty and precaution west of Nice.

Nevertheless a certain number of more or less tender Palms will resist bad weather anywhere on the Riviera, when growing underneath the foliage of evergreen trees, such as the splendid and graceful Pepper trees (Schinus molle) which is so hardy here, therefore I commence by naming the one most commonly met with, *i.e.* the Palm known here by horticulturists and the public generally under the name of Seaforthia elegans, but in England best known as Archontophoenix Cunninghamii. The late Edouard André, the famous French landscape gardener and for many years director of the *Revue Horticole* (Paris), in describing this Palm as growing on the Riviera, mentioned that botanists had changed its name three times, and expressed the wish that they would not continue changing its name and give continual occasion for confusion (*Esperons qu'il s'arretera en si beau chemin*)! The American Botanist, Mr. O. F. Cook, in the *Journal of the Washington Academy of Sciences*, vol. v., No. 7, February 19, 1915, has given reasons which he considers adequate for creating a new genus for this Palm, regarding it as the type and only species. He gave it the name of Loroma amethystina. As stated, it is known on the Riviera as Seaforthia elegans, and sometimes as Ptychosperma elegans, Ptychosperma Cunninghamiana, and Archontophoenix Cunninghamii.

This Palm is known and justly appreciated in English greenhouses on account of its comparative hardiness, but I think Mr. O. F. Cook is mistaken when he supposes it to be a native of North Australia, where the climate is distinctly tropical. Doubtless Mr. Cook has been able to learn little about the origin of the plants introduced into California (and which have served for his description), but I believe the Palm is a native of extra-tropical East Australia (New South Wales and Queensland). I have several photographs of it growing there in my possession and the plants correspond exactly with the Palms growing on the Riviera. However this may be the Palm is one of the greatest ornaments of the Riviera Gardens and up to the great frost of 1920 it never suffered in my garden, but, unfortunately, several specimens growing in open places were killed. I may here refer to a most curious observation which I had occasion to make. While the specimens possessing a a trunk were killed, quite small plants not yet having a trunk, but with the "heart" below the surface of the soil, resisted the bad weather, and this applies to other species of Palms as well. Such an observation is apparently in contradiction with general experience, for usually the younger a plant is the less it is resistant to cold. But it may be, I think, explained by the very short duration of the frost, so that not even the soil froze, except quite superficially, and only in some places. Thus, while the trunks of the Palms were subjected to the very low temperature of the surrounding air, the subterranean parts remained in a higher temperature. Though suffering severely even under the shelter of the Pepper trees, not all the plants were lost, and three years after the great frost many have completely recovered.

I wish to draw attention to the very beautiful colour of the spadices and flowers of this Palm, which caused Mr. Cook to give the specific name of amethystina. Usually Palms have flowers of a yellowish-white colour and ornamental only by reason of their presence in large numbers on imposing, large, often gracefully bent spadices. But in some Palms, for instance in some varieties of Butia (those very hardy Palms which I have mentioned in former articles), and still more in the Palm now under mention, the colour is a most beautiful rose-violet which adds considerably to its ornamental value. Later, the bunches of beautifully red-coloured fruits produce another ornamental effect. *Dr. A. Robertson Proschowsky, Jardin d'Acclimatation, Les Tropiques, Fabron, Nice, France.*

THE SWEET VIOLET.

For various reasons many flowers which were grown extensively twenty years ago are now seldom seen in gardens. Yet, the Violet, although perhaps not grown in such large quantities as formerly in private gardens, still remains a general favourite.

Violets may be grown in almost any kind of soil and in any situation, but to secure the best results good cultivation is necessary. Old plants will never produce first-class flowers; no matter how they are treated. Some growers take cuttings formed from small side shoots early in spring and insert them in frames, or under handlights, filled with sandy soil, keeping the frames close and shaded, until the cuttings are rooted, when they are planted out in their summer quarters.

Excellent results may be obtained by the following system, which entails less labour, an important item in these times.

About the middle of the month of April, or early in May, dig up the old plants and divide them. Select healthy, young shoots with roots attached, arrange these shoots three in a bunch and plant them out on a north border at a distance of one foot apart.

The Violet delights in a cool soil. In old gardens where the rooting medium is rich in humus it is not difficult to secure a suitable site. Provided the ground has been trenched, or dug deeply during the winter, a sprinkling of soot lightly forked in will now suffice. On clay soils old potting compost and leaf-mould should be added. After planting, water the bed to settle the soil around the roots, and supply a mulching of half-decomposed horse manure or leaf-mould, which will afford a check to rapid evaporation.

Summer cultivation consists in watering the plants copiously during the absence of rain, the removal of runners and weeds, and stirring the surface of the soil to promote aeration.

Syringe the plants thoroughly during the evenings following bright, sunny days; a weekly spraying with well diluted soot water is also very beneficial. Keep a strict watch for the appearance of red spider, and should this pest appear thoroughly damp the undersides of the leaves and dust the foliage with a mixture of soot and lime. Beds mulched with horse-manure and provided with sufficient water are not often attacked by red spider.

Frames should be prepared for the reception of the plants in September. A raised bed made of leaves, on a layer of faggots on which Pea haulm or short litter is placed forms a suitable foundation for the frames. The compost in which the Violets are to be planted should consist of old potting soil, or failing this, the top spit of soil from the kitchen garden, mixed with leaf mould. Do not use fresh loam, and mix a little soot and lime with the soil. Make the beds firm. In planting allow for a free circulation of air between the plants, and arrange them so that when the lights are placed in position the leaves will be within a few inches of the glass. Water them and keep them close and shaded until they become established. Afterwards expose them to all the light and air available. The surface of the bed should be stirred frequently, and runners, weeds, and decaying foliage removed.

During frosty weather protect the frames with mats or litter. Several excellent new varieties of Violets have recently been introduced and should be given a trial. Two old reliable favourites are Princess of Wales, large single; and Marie Louise, double. *C. Ruse, The Hyde Gardens, near Luton.*

PUBLIC PARKS AND GARDENS.

ASTON PARK, BIRMINGHAM.

A report, consisting of a number of suggestions for improvements to Aston Park, Birmingham, has recently been issued by the Birmingham Civic Society, whose Hon. Secretary, Mr. William Haywood, was invited to attend the annual inspection of the parks and to make any suggestions the Society might think suitable. The Society, in its report, finds that it is impossible to deal with Aston Park as with ordinary suburban enclosures, as the historical value of the Hall claims consideration for special environment. It is not proposed to attempt a restoration of the grounds to their original character, but to provide within the area now available, gardens which might have been contemporary with the house, based upon the manner of garden design in vogue in 1758. At present the children's gymnasium and the bandstand are two of the least satisfactory details of the park. Both are incongruous adjuncts to the Hall, and it is proposed to move the former to a site near the north-west entrance, where it will adjoin the asphalted playing areas, and to construct a new music stand, stage, and auditorium, near to the south entrance.

The revised arrangement of the gardens around the Hall includes vistas radiating from the east and west fronts, which would and greatly to the stately character of the mansion. One of these vistas is designed as a direct approach from the lodge entrance in Church Lane. In the new plan the present central road is converted into a large lawn, with formal trees at intervals, and a suitably designed view point as a terminal feature. It is suggested that the formal beds in the east forecourt and on the slope below the west terrace should be laid out with topiary work of a character contemporary with the Hall; that the lawn now occupied by the bandstand should be converted into tennis courts; that the west and south margins of this green should be planted with double herbaceous borders between clipped hedges; that the bowling green on the north front should be increased in size; and that the path area be somewhat reduced.

The previous articles by Dr. Proschowsky were published in our issues for May 1, June 12, July 10, September 4, November 20, December 18, 1920; March 12, April 30, June 11, October 8, November 19, 1921; January 21, February 11, April 1, June 17, July 29, October 14, November 11, December 23, 1922; March 10, May 5, and September 29, 1923.

WINTER'S INJURY IN THE GARDEN.

WE have passed through an old-time winter, typical of those of fifty years ago; at least it reminds me of the winters of my early years in the north, without the snow, which we seldom get here. From October to January 25th we had much rain and up to the end of March the weather was just the reverse, for during that period less than 1½-inch of rain fell.

The weather during the whole of the past six months has been intensely cold, but it has kept the fruit buds dormant and the blossoming of fruit trees will be at least three weeks later than last year. The cold weather may also have had some effect in destroying pests, although I think most of the injurious insects can take care of themselves, whatever the state of the weather, severe or otherwise.

The long spell of dry weather this spring has been an advantage in so much that the tillage of the soil has been made easier, and rarely has there been such a favourable time for spraying fruit trees with full effect, as in the absence of rain the specific has not been washed off the branches.

We can now estimate the effect of this long, cold winter. Although the prospect of a good fruit year generally is, so far, favourable, the first Apricot flowers are already ruined. Fig trees on walls have had many of the shoots killed, and both the old and young wood of the Brown Turkey variety has suffered much worse than that of St. Johns (syn. Pingo de Mel). The Brunswick variety is, according to my experience, the hardiest of all Figs and produces the largest fruits.

All members of the Brassica family have suffered the worst in my experience. Many of the Brussels Sprouts, all varieties of Kale, Broccoli and Spring Cabbage have been killed and those that remain appear as if a fire had swept over them. Fifty per cent. of the winter Spinach has been killed and the plants that have survived are losing all their old leaves. Wallflowers are mostly killed and Sweet Williams have the outer half of their foliage as if it were burnt. Phlox frondosa has been either killed or badly damaged, whilst many Veronicas, such as Autumn Glory, salicifolia, pinguifolia and latifolia have been ruined. Lonicera nitida has been damaged by the cold, and some of our plants of Dracaena indivisa have been killed, whilst all have been damaged

Other shrubs that have suffered injury are Choisya ternata, Olearia macrodonta, Edwardsia grandiflora, Escallonia macrantha, Kerria japonica flora plena, and Yucca recurva. Most of the blossom buds on Cydonias have been ruined and those of C. japonica Simonii are affected the worst; this is, in my opinion, the most beautiful of all the Cydonias, the flowers being a bright carmine verging on maroon.

Much of the damage in this garden may be attributed to the district being a very damp one, and there is a stream and lake here. Most of the cultivated garden is reclaimed bogland and there is always underground water. *G. Abbey, Norton Manor Gardens, Sutton Scotney, Hampshire.*

APPLE SCAB IN THE NORTH OF IRELAND.

APPLE SCAB is one of the most troublesome, if not the most troublesome of diseases of Apples with which we have to contend in the North of Ireland. County Armagh is the most important Apple growing district and from a commercial aspect by far the most popular variety of Apple grown is Bramley's Seedling. This variety, which hitherto has been so little susceptible to Apple Scab in England, has been liable to serious attack here for a number of years. In an average season the leaves and fruit are attacked by the fungus, but up to the present the fungus has but very rarely been found associated with the wood.

In the middle of February of the present year numbers of last season's fallen leaves were gathered from a grass orchard and brought into the laboratory. The varieties of Apple grown in the orchard were Bramley's Seedling and Grenadier, and the majority of the leaves were from trees of Bramley's Seedling. The leaves were kept moist and subjected to periodic examination for perithecia of the Apple Scab fungus. In early April these were found in all stages of development, the curved necks of the fruit bodies projecting from both the upper and the under surfaces of the leaves. Their measurements and chief characteristics agree with those given by Mr. Salmon in his recent article to the *Gardeners' Chronicle* (p. 190), but up to the present we are not able to say whether the conidial stage of a culture commenced from an ascospore is that of Fusicladium dendriticum, Fel. *A. E. Muskett, Queen's University, Belfast.*

THE GROWING OF MELONS IN FRAMES.

A little more time and attention are required to obtain good results with Melons in frames than with Cucumbers, as frame Melons cannot be grown in less than twelve to fifteen weeks. If the seeds are sown in April, fruits should be forthcoming from the end of July to the end of September. The compost most suitable for Melons is sound turfy loam of a calcareous nature and somewhat heavy in texture, some lime rubble or charcoal, and a little soot to destroy wireworms. Upon the base of grass, small cones of soil about 18 inches high may be placed, as Melons should be planted high and dry and completely above the line of watering. Another method is to form a continuous ridge of compost the same height as the heaps, and set the Melons 18 inches apart irrespective of the lights or rafters. The soil may be mixed some time before it is required, and placed where it will become dry and warm. If the quality is poor a little bone meal may be added in preference to decayed manure, which encourages worms and favours gross growth Finely powdered marl may be added to very light soils. The plants will soon fill the frame with rampant growth, and set plenty of fruits when dung is used freely, but such plants almost invariably develop canker, which is brought on by incessant watering. Light soils and animal manures should not be used, but sound loam warmed as it is wanted and made into fairly high, narrow ridges, in preference to flat, shallow spreading masses as for Cucumbers, which soon dry out and force the roots to grow down into the manure bed.

Some growers shift the plants into 5-inch pots and pinch out the points. I prefer planting them when the first rough leaf is visible, if the frame is ready, as all checks by this method are obviated. See that the plants are thoroughly moist at the roots and plant on small conical mounds about two inches higher than the level to which the additional supplies of compost will be raised when earthing up is finished. The stems will then become hard, water will not reach them and canker will be averted.

Press the compost firmly about the plants, shade them lightly for a few days, keep the frame moist and moderately close but not closed entirely, as steam is most dangerous to the plants.

If the soil is very dry a little water warmed to 85° may be applied. Two plants to each light are sufficient, and three breaks from each plant will be ample.

As frame Melons do best when earthed up piecemeal, each layer of warm compost should not exceed three to four inches in thickness along the sides and although level on the surface should be quite two inches below the little hillocks upon which they are planted.

With good compost and tropical warmth the plants will grow rapidly, provided intelligent care is bestowed upon them. About 5 p.m. cover the frame with mats for the night, but leave the light a quarter-of-an inch open at the back to prevent an accumulation of steam, closing the frame early the next morning. When the temperature rises to 75° commence ventilating for the day; ventilate a little and often until the maximum warmth of 85° is reached, when the amount of air should be increased or reduced as the sun or cold currents affect the temperature. Do not shade unless bright sun causes the tender foliage to flag after a dull period. Gradually reduce the amount of ventilation and close the light about 3 p.m., well syringing the plants with soft water warmed to 80° or 85°, care being taken that the small mounds and stems are kept dry. Water the roots once or twice a day as necessary. Allow the temperature to rise to 90° in the afternoon, but see that the foliage becomes thoroughly dry at least once in the twenty-four hours.

When the plants nearly touch the sides of the frames remove the ends of the shoots which will cause the laterals to gain strength and show fruit. If only a few female flowers open, these and the male blossoms are best removed, but when a flush of flowers opens together, carefully fertilise the female blooms from day to day until enough fruits and to spare are properly set and swelling.

When the latter are the size of Walnuts, select about eight of uniform size for the crop to each light, removing the remainder. Pinch the fertile growths at the first joint beyond the fruit, and those from which the surplus Melons have been taken to within one joint of the parent vine. By adopting this method and constant pinching a superfluity of laterals is obviated, the premier leaves are carefully preserved, sunheat dissipates stagnant moisture, and canker rarely puts in an appearance.

If extra large fruits are required, reduce the crop to three on each plant, place each fruit on a clean brick or inverted pot, and from this time until the fruits have attained full size and are perfectly netted warm, diluted liquid manure may be given the roots twice a week, with an occasional dressing of warm loam and bone meal. All stopping and training should be performed immediately before closing the frame; endeavour to maintain the night temperature as near to 70° as possible.

When the Melons attain their full size the use of stimulants should cease and pure water only given in gradually diminished quantities. Gradually reduce the amount of atmospheric moisture in proportion to the amount of sunshine, and increase the air, especially through the early part of the day.

When the fruits change colour and the stems begin to crack, the aroma will indicate that one or more Melons are ripe enough for cutting, but not for eating. Cut the fruits with a good portion of the stem attached, and remove them to a warm dry temperature for three or four days, when they will be ready for the dessert table. Nearly all varieties of Melons will succeed under the above conditions, there are, however, many varieties specially recommended for frame culture besides the well-known Cantaloupe varieties.

Canker and red spider are the chief pests of the Melon, and both may be prevented or greatly reduced by healthy culture, and by the careful preservation of all the premier leaves. As a remedy for canker, quicklime, sulphur, or dry powdered charcoal may be rubbed into the affected parts. *F. Jordan.*

VEGETABLE GARDEN.

CHICORY OR SUCCORY
(CICHORIUM INTYBUS).

THIS is one of the most interesting and valuable of our native perennial herbs, and one whose merits and virtues have been recognised from very early times. Thus Miller informs us that "the wild Chicory (of which there are some varieties in the colour of the flowers) is seldom propagated in gardens, it growing wild in unfrequented lanes and dunghills in divers parts of England, where the herb women gather it and supply the markets for medicine." Further respecting its medical uses, he writes:—"All the sorts of Succory are esteemed aperitif and diuretic, opening obstructions of the liver and good for the jaundice," etc., etc. In addition to these special merits (the benefits of which are shared by man and beast), it is also one of the most easily grown salad plants both for summer and winter use and, if properly treated and prepared, one of the most acceptable and healthful vegetables.

It is, therefore, much to be regretted that the plant has been so persistently neglected in England.

As regards the common variety (*Chicorée sauvage* of the French) the supply of the seed is both abundant and cheap, the culture is simplicity itself and the plant is quite at home in any ordinary garden soil. At the same time generous treatment is amply repaid both in quality and quantity of the produce, which is also much less bitter when well cultivated than in its natural state.

For a summer salad the seeds should be sown thickly early in the spring, and the young green leaves may be cut several times in the same year. They are an appetising addition to any salad.

To prepare it for use as the winter salad known as the *Barbe-de-Capucin* in Paris, the seeds should be sown thinly at the end of June in good garden soil, well supplied with moisture, in order that the roots may become well developed. The roots will be ready for lifting at the beginning of the winter and should be taken up as required three or four weeks before the salad is needed. Care should be taken not to injure them in the lifting: the leaves should be cut off about half-an-inch from the crown and the roots should be placed in light, sandy soil, with the crowns facing outwards, in boxes, pots or sloping heaps of soil in a perfectly dark room (a cellar will do if not too cold). In a short time, which varies with the temperature of the chamber, the blanched leaves, which are at their best when about nine inches long, will be ready for use. As the leaves of the common variety are slender and incised, those who prefer broader leaves more like those of Batavian Endive should sow the improved broad-leaved form of the wild variety, while for those who are looking for quantity more than quality the large-rooted Magdeburg Coffee Chicory is the most suitable. The roots of this variety should not be more than one half or three quarters-of-an-inch in thickness and may be shortened to a length of ten inches.

For those who prefer a variety in their salads there are the Italian red-leaved and the Venetian-striped varieties, both of which make a very pretty appearance in the salad bowl when they are nicely blanched; both these varieties are broad-leaved.

The next and most popular Chicory is the Brussels, known in Belgium as Witloof and in Paris as Endive. It is a sub-variety of the Magdeburg Coffee Chicory, and may be used either as a winter salad or a cooked vegetable: in each case it has to be carefully blanched beforehand. It is remarkable for the width of the ribs and stalks of the leaves, the only part of the plant that is eaten. The form in which these are sent to market resembles a very solid miniature white Cos Lettuce. They may be eaten raw in salads, or nicely boiled and served with butter sauce; in either style they are a pleasant and healthful food.

To those who are not acquainted with the culture of this vegetable, the following directions, following those given in *The Vegetable Garden*, will be helpful. The seeds should be sown in the open ground, in June, in drills about 10 inches apart, in good, deep, rich soil. The plants are allowed to grow on till the beginning of winter; an occasional watering may be necessary. In the beginning of November the roots, which by that time will be about 1½ inch in diameter, should be taken up, and any with divided or too narrow leaves or more than one crown should be thrown out. The leaves of the selected roots should be trimmed off about 1½ inch from the crown, and the lower end of the roots shortened to bring them all to a uniform length of about nine inches. They should then be placed upright, about 1½ inch apart, in a trench about 18 inches deep, so that the crown is eight inches below the level of the ground. The trench should then be filled up completely and very firmly with good, light, well-drained soil. If a speedy growth is desired, such portion of the trench as is to be forced, should be covered with a layer of manure varying in depth according to the quality of the manure, but never less than 16 inches, and in about a month's time the leaves will be ready for use."

The only other sorts of Chicory which it is necessary to mention are those of which the roasted roots are ground and mixed with Coffee. The varieties used for this purpose are the large, smooth rooted Magdeburg, a very large, long root with upright leaves; the short thick-rooted Brunswick, of which there are two forms, one with deeply cut and spreading leaves and the other with entire or strap leaves; and a French variety named "The Richest" which produces large, smooth, strap leaves and roots of very superior quality. Immense acreages of these types have been grown for many years in Belgium, France and Germany, and during the past few years a modest area in our own country. The British farmer is not very keen on the crop at present, but as the venture is in the hands of intelligent business men with an honourable reputation the ultimate success of the effort is only a question of time. *S. B. Dicks.*

FOREIGN CORRESPONDENCE.

CHEMICAL DISCONTINUITY IN GRAFTED PLANTS.

THE interesting experiments of Professor Colin, of Paris, on the subject of the chemical history of grafted plants are well known. It is therefore of interest to know that Messrs. H. Colin and R. Franquet have just published (in the *Bulletin du Muséum d'Histoire Naturelle*, Paris, 1923) an account of some fresh experiments which confirm the results of the previous researches, notably in the case of grafted Sunflowers.

The species employed were Chenopodium album and C. vulvaria. The latter is well known to give off a disagreeable odor, due to the presence of trimethylamine; C. album, on the contrary, has no trace of this odour.

The C. vulvaria thus grafted made good growth, flowered, and fructified; the leaves and stalks, when rubbed between the fingers, gave out a strong smell of trimethylamine, while the stock remained entirely free from odour. When analysed the grafts of C. vulvaria gave a positive reaction indicative of the presence of trimethylamine, while the stock, C. album, gave no such reaction. It is thus evident that a character cannot be imparted to a stock which does not originally possess it. *A. M.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Campanula excisa.—In the *Gardeners' Chronicle* of April 12 (p. 204), Mr. S. Arnott has a note about the difficulty of growing Campanula excisa. Many years ago I found the plant growing in Switzerland, and brought back roots to Kew, which the foreman of the Alpine department planted in a large frame in a deep bed of peat. The following year there were masses of the Campanula which flowered abundantly and tried to spread beyond its limits. After having seen it so well established it was a great disappointment that when removed to an ordinary bed of soil in the Rock Garden, in spite of every attention, it rapidly dwindled and finally died out. I have often wished I could try to grow it in peat myself, and should be very glad if my experience would encourage some gardener to try it. I think the best situation to suit the plant would be half shade, and probably the addition of grit, sand, and a little loam, in the rooting medium would be an advantage. *H. Thiselton-Dyer.*

Young Lads and Horticulture.—I have been greatly interested in the discussion on this subject. Mr. Robert Eastwood (p. 166) considers that it is courting disaster to be kind to some lads. This may be true in some extreme cases, but in my opinion and experience, I have always found it the best policy to be kind, at the same time strict. Boys of the present day give gardeners a lot of trouble at times, as they have not the same ambition to become good gardeners as lads had before the war. In these days one has to encourage a lad by means of kindness, and to instil into his mind the future that lies before him. I have always found that kind words work wonders with boys if they have any vestige of interest in gardening. They will not put up with the treatment some of us had to endure in years gone by. I have made life-long friendships with the gardeners I have worked under who were kindly disposed; the severe ones who could not speak a civil word are blotted from my memory. A gardener may be strict without being easy going, and command his staff on successful lines by strictness combined with kindness. *John Nibbs, Frimhurst, Farnborough, Hants.*

Romneyas.—I was pleased to read the note by Mr. Harrison of Culzean Castle Gardens, on p. 227, with reference to the valuable contribution by M. Correvon on Romneyas. It is now many years since I first saw R. Coulteri in flower at Culzean in the time of the late Mr Murray, and it is a great pleasure to hear such favourable accounts of its welfare. I have seen R. trichocalyx in a number of gardens, and in all it appears to have shown the strongly marked characteristic of spreading by underground stems, as well as by the different odour and colour of its anthers to those of R. Coulteri. The first feature is a decided advantage for propagating purposes, but it is not always welcome in gardens, and in suggesting the plant for commendation, and for planting in various places where it would be an acquisition, I have found it necessary to take this spreading habit into account in advising friends where to plant it. It is an exceedingly valuable and beautiful plant, and much more satisfactory than R. Coulteri in most places. It appears to be hardier, although I think R. Coulteri is much hardier than many suppose. Of course, Culzean is very mild and equable in its climate, but I know of R. Coulteri doing well in gardens where the conditions are much less favourable than in the delightful gardens of the Marquis of Ailsa. In some of these places R. Coulteri is grown on a wall, but it is more elegant in habit when given an open position. R. trichocalyx, where I have seen it growing, is dwarfer than R. Coulteri. *S. Arnott.*

SOCIETIES.

ORCHID CLUB.

The meeting of the Orchid Club held on April 11th was noteworthy for the fine examples of Dendrobiums and Cymbidiums shown.

Dr. F. Craven Moore staged a large group; the centre plant was the fine Brasso-Cattleya Cliftonii magnifica, and this was surrounded by excellent examples of Lycaste Skinneri. In the background were several large spikes of Oncidium Marshallianum, while a batch of new Odontioda hybrids of a soft art shade of orange-red formed a beautiful contrast. The body of the group was filled with Dendrobiums in variety.

A. T. Cussons, Esq., Kersall (gr. Mr. F. Cookson), exhibited a large group of hybrid Cymbidiums, several of which were fine examples of culture, and conspicuous among them was the beautiful pink C. Alexanderi, Cusson's var., and some fine forms of C. Pauwelsii.

Sir William Thom, Blackburn (gr. Mr. R. Williams), showed a group of Dendrobiums which were notable for the excellent manner in which they were flowered; conspicuous among them were D. nobile var. King George, D. nobile, High View var.; D. Rubens var. grandiflora, D. Ainsworthii var. giganteum, D. Cybele album and many others.

B. J. Beckton, Esq., Irlams o' th' Height (gr. Mr. W. A. Stewart), exhibited a mixed group in which were the fine Miltonia Bleuana, Hessle var., M. B. rosea bearing thirty of its large, blush-white flowers; the sweet-scented Coelogyne ochracea, Angraecum Sanderianum, the pretty Vanda coerulescens, the handsome Cypripedium Rothschildianum magnificum, the curious Bulbophyllum tremulum and various Masdevallias.

NEWCASTLE HORTICULTURAL.

This Society held its second annual spring show at Collingwood Cafe, Newcastle, on April 12. Many high-class blooms were staged in the thirty classes, which were well filled, Hyacinths, Tulips, Narcissi and Cinerarias being exceptionally good.

The chief prize winners were Mr. C. J. Dillon, ten firsts and three seconds; Mr. G. W. Howard, two firsts and three seconds; Mr. J. Hetherington, two firsts, one second and one third; Mr. J. Kirkbride, one second; Mr. H. McDonald, one third; Mr. A. Standing, two seconds and three thirds; Mr. T. Mills, three seconds and one third; Mr. E. Greygoose, one third; Mr. J. Butler, two thirds; Mr. F. Spall, one second and four thirds; Mr. T. Clark, one first; Mr. W. Wood, one first, two seconds and one third; Mr. J. Robinson, one first; Mr. J. Stevenson, one third; Mr. W. Bright, two firsts, six seconds and three thirds; and Mr. G. W. Garbutt, one first.

Chief interest centred in the competition for the best model rock garden. The exhibit staged by Mr. J. Kirkbride, Ashfield Tower, Gosforth, was very interesting and well carried out, but the use of somewhat large mounds of stone gave it a heavy effect, as compared with the exhibit staged by Mr. G. W. Garbutt, Wallsend Park. The latter had a charming design which included an octagonal sunk garden with a sundial in the centre, and a rock garden with a tiny rustic bridge over a small stream. There was also a water pool and a small hardy Fernery, whilst Alpine flowers and Alpine shrubs were used to great advantage. Mr. Garbutt was awarded the first prize and the Royal Horticultural Society's certificate, Mr. J. Kirkbride securing the second award. Mr. Greygoose's third prize exhibit was somewhat spoiled by the excessive use of water and an over prominent footpath, while Mr. T. Rogers, who was awarded a special prize, set up an exhibit which was more a dry wall garden than a rock garden, as it is generally understood.

Mr. T. A. Lawrenson, Gosforth, had an exhibit of new hybrid Primulus, ranging in colour from pale heliotrope to deep purple. These were arranged in a setting of dwarf alpine shrubs. Messrs. Barr and Sons exhibited many fine Daffodils, including Orange Glory, Mustapha, Prospero, Cingalee, Alasnam, Alexas, Loveliness, Apricot Glow, Will Scarlett and numerous seedlings.

The Society is rendering all possible assistance in connection with the forthcoming Newcastle Flower Show, for which special lectures are being arranged by experts.

ROYAL CALEDONIAN HORTICULTURAL.

After a lapse of nine years, the Royal Caledonian Horticultural Society resuscitated its spring show on the 11th inst. and, although the number of entries in the competitive classes was disappointing, a good exhibition was made by the nursery trade. Miniature rock gardens formed a novel feature, and there were several excellent exhibits of these. It was rather disappointing, however, to find no entries for the prizes offered for collections of Alpine plants, for which possibly the very backward weather was in a measure responsible. The show was opened by the Countess of Haddington, and there was a good attendance of the public.

In the plant classes the leading prize-winners were Mrs. Turner, Inveralmond, Cramond (gr. Mr. J. W. Sword), and Colonel Trotter, of Mortonhall, Midlothian (gr. Mr. W. Crighton). Mr. S. Winton, Firrhill, Colinton, was the only competitor for the miniature rock garden in the gardeners' classes, and was awarded the first prize. The entries in other classes were meagre, but some excellent vegetables were staged.

In the competitions restricted to nurserymen, Messrs. Laird and Dickson, Edinburgh, were placed first for an artistic, miniature rock garden, the second prize being awarded to Mr. P. Aitken, Ballencrief Nursery, Bathgate.

The trade exhibits were numerous and of high quality, and the following Awards were made:—

Gold Medal and Special Appreciation:—To Messrs. Storrie and Storrie, Glencarse, for Cinerarias, Primulas, &c.

Gold Medals:—To Messrs. Dobbie and Co., Ltd., Edinburgh, for double-flowered Tulips; Mr. David King, Edinburgh, for flowering and foliage plants; Messrs. Laird and Dickson, Edinburgh, for rock garden; and Messrs. Cunningham, Fraser and Co., Edinburgh, for Alpine plants, &c.

Silver-Gilt Medals:—To Messrs. John Forbes (Hawick) Ltd., for Primulas, &c.; Messrs. Wm. Thomson and Co., Edinburgh, for Tulips and other spring flowers; and Messrs. Bakers, Ltd., Codsall, for Alpines and hardy plants.

Silver Medal:—To Mr. D. M'Leod, Manchester, for Orchids.

Cultural Certificates were awarded to Mr. D. Armstrong, Drum, Midlothian, for Pea Little Marvel; Mr. J. Masterton, Edinburgh, for Begonia semperflorens; Mr. T. A. Scarlett, Edinburgh, for Black Currant Edina; Mr. F. Glass, Edinburgh for Sweet Peas.

READING AND DISTRICT GARDENERS'.

The last fortnightly meeting of the spring session of this Association was held on Monday, the 7th inst., when Mr. Councillor Frank E. Moring, presided over a large attendance of the members. Mr. C. J. House, Westbury-on-Trym, Bristol, gave an interesting address on "Spring Flowers." He referred to Violets, Polyanthuses, Primroses, Viola gracilis, hardy Cyclamens, Primulas, Anemones, Aubrietias, Iris reticulata, Tulipa Kaufmanniana, Narcissi, and many flowering trees and shrubs.

In the competition for three vases of Narcissi the first prize was won by Mr. H. H. Fulker, Elmhurst Gardens, Reading, and the second by Mr. A. W. Gower, Calcot Grange Gardens. Mr. C. J. Howlett, The Yews, Earley, was the successful exhibitor in the class for one vase of mixed blooms.

In the non-competitive section Mr. Gower was awarded a First-class Certificate for a splendid group of Schizanthus, whilst an Award of Merit was given to Mr. Howlett for several fine plants of Polyanthuses, and to Mr. W. Broomfield, Cliffe House Gardens, Mapledurham, for Schizanthus.

This meeting was set apart as "Hospital Night," and as usual on these occasions a good assortment of flowers was staged to be sent to the Royal Berkshire Hospital. Those contributing were Messrs. Dow, Fulker, Gower, Janes, Jennings, Batten, Townsend, Watkins and J. Wynn. A collection made on behalf of the funds of the Institution amounted to £2. 5s.

CARDIFF GARDENERS'.

The Annual General Meeting of the above association was held on the 25th ult. at 7.30 p.m. Mr. H. Wilkins presided over a good attendance of the members.

Sir J. Herbert Cory, M.P., was unanimously re-elected President. The Vice-Presidents, eighteen in number, were re-elected together with three new Vice-Presidents. Mr. W. Webber and Mr. A. Ayres were elected chairman and vice-chairman respectively.

Mr. A. W. Marks was re-appointed minute secretary, and Mr. R. Mayne hon. secretary and treasurer.

It was decided to hold monthly meetings during the summer with a view to visiting gardens and other places of interest.

The annual outing will be to Wembley Exhibition in August.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The April meeting of this Society was held in the Royal Horticultural Hall on the 14th inst., Mr. C. H. Curtis presiding. Six new members were elected. Four members were allowed to withdraw double the amount of their interest, which came to £10 14s. 6d., and two lapsed members withdrew £11 6s. 1d., while the sum of £29 19s. 5d. was passed for payment to the nominee of a deceased member.

The sick pay for the month of March on the private side amounted to £96 10s. 4d., and in the State section to £78 10s. 6d.; Maternity claims came to £10. Grants were made for dental and optical treatment which amounted to £6 11s. 0d.

The Annual Report of the Society, which will include the names and addresses of all members, will be sent out in the course of a few days.

SCHEDULES RECEIVED.

Accrington and District Chrysanthemum Society.—Chrysanthemum show to be held in the Town Hall, Accrington, on Saturday, November 8th.—Secretary, Mr. A. A. Crabtree, Arden View, Hodder Street, Accrington.

Derbyshire Horticultural Association.—Summer show to be held at St. James' Hall, Derby, on Saturday, July 26th; seventeenth annual exhibition of Chrysanthemums, etc., to be held at the Drill Hall, Derby, on Thursday, Friday and Saturday, November 6th, 7th and 8th.—Secretary, Mr. W. C. Flanders, 45, Powell Street, Derby.

Royal Caledonian Horticultural Society.—Autumn show to be in the Waverley Market, Edinburgh, on September 10th and 11th.—Secretary, Mr. Donald Mackenzie, 4a, St. Andrew Square, Edinburgh.

Scottish National Sweet Pea, Rose and Carnation Society.—Exhibition to be held in conjunction with the provincial show of the National Rose Society in the Kelvin Hall, Glasgow, on Wednesday and Thursday, August 6th and 7th; provincial show to be held in conjunction with the Royal Horticultural Society of Aberdeen in the Duthie Park, Aberdeen, on Thursday, Friday and Saturday, August 14th, 15th and 16th.—Secretary, Mr. J. Smellie, Westwood Cottage, Helensburgh.

Obituary.

Normah Gill.—It is with very great regret we learn of the death of Mr. Norman Gill, who passed away at Penryn, Cornwall, on the 15th inst. Mr. Norman Gill was the second son of Mr. Richard Gill, of Penryn and Falmouth, and he began his gardening career under his father, who at that time was at Tremough. From Tremough he went to Kew, and after two years in the Royal Botanic Gardens he obtained an appointment in the Calcutta Botanic Gardens and later occupied positions at Agra, Lucknow, Delhi, Cawnpore, and Allahabad, and more recently he had charge of the Kumaon Government Gardens, including the gardens at Naini Tal, and Bharbar. Mr. Norman Gill was keenly interested in plants and made numerous excursions in search of new species, and it was due largely to his efforts that Primula Winteri was introduced to cultivation. Only a few months have passed since he retired from the Indian service on a pension, but he was not enjoying good health. He leaves a widow and two sons to mourn his loss.

James A. Gammie.—Intimation has reached us of the death of Mr. James A. Gammie, a distinguished Aberdeenshire man, who for over thirty years was Superintendent of the Government Cinchona Plantations in Sikkim. Mr. Gammie served his apprenticeship as gardener at Drum Castle, Aberdeenshire, where for forty-five years, the greater part as head gardener, his father served the Irvins faithfully and well. After continuing his studies for some time in Kew Gardens, Mr. Gammie was specially selected, in 1865, by the Secretary of State for India, to become manager of the young and struggling Cinchona Plantations in Sikkim. He was faced with a rather formidable task, for the cultural requirements of the various Cinchonas had still, to some extent, to be ascertained; the soil was indifferent, the climate far from ideal. But Mr. Gammie, "setting a stout heart to a stey brae," surmounted these difficulties, and to him was entirely due the fact that these plantations produced Cinchona bark on a paying and commercial scale. Credit must also be given him in great measure for the successful experiments he carried out to separate from the harvested bark the alkaloids it contained, and to do so on an economic and commercial basis. It is well known that the humane efforts of the Indian Government to place quinine within reach of the poorest would never have been realised so early but for the fine and effective work done by Mr. Gammie. He retired from the Indian Service in 1897, and, since then, had resided in London, devoting his leisure to natural history, his interest in which he kept up to the very last. Quiet and unassuming, and loving the open book of nature, he was great in friendship and hopitality. In 1918, the Kew Guild honoured Mr. Gammie by electing him President. He is survived by Mrs. Gammie and family, who reside at Harvard Road, Gunnersbury, London, where the death took place, and by two sisters, the Misses Gammie, who reside at Lockwood, Drumoak, near Aberdeen.

Angus Robertson.—It is with regret we learn of the death of Mr. Angus Robertson, the highly esteemed gardener to Mrs. Walter Jones at Aberuchil Castle, Comrie, Perthshire. Mr. Robertson, we understand, had been in poor health for some time, and he died in Edinburgh Royal Infirmary on the 14th inst. He had been gardener at Aberuchil for a great many years and was highly esteemed by the family in whose employment he had been so long. He was a very able gardener, and the gardens at Aberuchil Castle, which are extensive, always bore the mark of the highest cultural skill and the most assiduous attention. Mr. Robertson was greatly interested in hardy shrubs, herbaceous plants, and alpines, and the collection of these at Aberuchil was one of which he was justly proud. It is difficult to say what were his special favourites, but the charming wild garden was one of his delights, and there and in other parts of the gardens Lilies were a notable feature. The death of this good gardener and highly respected man is deeply regretted, and our sympathy is extended to Mrs. Robertson in her great loss.

Richard Willis.—One of the oldest amateur horticulturists in North Lancashire, Mr. Richard Willis, aged 93 years, passed away on the 3rd inst, at his residence in Lancaster. Mr. Willis had been a keen horticulturist for the lengthy period of almost seventy years. Commencing with vegetables, he eventually became one of the best known florists in the district. About fifty years ago he settled at Vineyards, Lancaster, and erected several greenhouses. About forty years ago he was persuaded to send an exhibit of Maréchal Niel Roses to the Crystal Palace, and was successful in obtaining the premier award, his exhibit being illustrated in a gardening paper then in vogue, but since defunct, a copy of which he always proudly exhibited to anyone interested. He became one of a fraternity of Fern experts, and was a keen Fern hunter until late in life. As a cashier on the London and North-Western Railway, his duties took him into West Cumberland, and many a rare Fern accompanied his return. On Warton Crag and Clougha he knew the haunts of many rare specimens. He was successful with Grapes and Chrysanthemums, but had catholic tastes, which included Fuchsias, Deutzias and Pelargoniums. Although of such great age, he had prepared his vines for the present season, and was busy preparing his houses for Tomatos when taken ill. One of his last tasks was to lift and divide his herbaceous plants. Mr. Willis was a staunch Churchman and was Churchwarden at Scotforth Church for thirty-four years. He is survived by an adopted daughter.

TRADE NOTE.

Attention is directed to the possibility of obtaining assistance under the Trade Facilities Acts in respect of large undertakings which it may not be possible to assist under the scheme of Loans to Agricultural Co-operative Societies which is administered by the Ministry of Agriculture.

Under the terms of the Trade Facilities Acts the Treasury may guarantee the interest and repayment of loans raised in connection with the carrying out of any capital undertaking, or for for the purchase of articles manufactured or produced in the United Kingdom required for the purposes of any such undertaking, if they are satisfied that the application of the loan in the manner proposed is calculated to promote employment in the United Kingdom.

Agricultural undertakings which might be eligible for consideration are sugar-beet factories, dairy factories or milk depots, large bacon factories, live stock auction marts, fruit markets or other large scale undertakings dealing with agricultural produce.

Under the Trade Facilities Acts the Treasury can only guarantee loans: they have no power to make a loan of any kind. The guarantee cannot be used for the provision of working capital, nor for the purpose of extinguishing existing liabilities.

Applications should be made to the Trade Facilities Advisory Committee, 16, Finsbury Circus, London, E.C. 2.

GARDENING APPOINTMENT.

Mr. A. Bissett, previously Head Forester to Sir George Macpherson Grant, Bt., of Ballindalloch, Banffshire, has been appointed estate manager to H.R.H. The Princess Royal, at Mar Lodge, Braemar, Aberdeenshire,

ANSWERS TO CORRESPONDENTS.

Peach Shoots Diseased: *J C.* The Peach shoots are affected with the fungus Botrytis which affects young, unripened shoots, generally at the nodes, the parts of the stem from which the leaves are produced Cut out the diseased shoots and spray the trees with a rose-red solution of permanganate of potash.

Ghost Moth Grubs: *H. B. S.* The grubs are those of the Ghost Moth (Hepialus humuli) which: with the allied species. H. lupulina, the Common Swift, are frequently found in gardens. The Ghost Moth Caterpillar feeds on the roots of plants such as Dandelion and Dead Nettle. Garden plants, however, do not come amiss to the insect. The caterpillar is full grown in May and the moth may be found in June or July. As a rule not much serious injury is done by the grubs in cultivated soil, but where, as in perennial borders, deep cultivation cannot be attempted, the method of poisoned traps would probably answer well. For this purpose cut oblongs of Potatos and cover the surface with Paris green or lead arsenate. Arsenate is easier to use as it may be made into a thick cream and the slices dipped into it. Then put the poisoned bait into holes near the plant's root, about three inches down, and cover with soil. The baits should be examined occasionally and when necessary, fresh ones substituted.

Seed for Naming: *P. H. R.* Judging from the small coloured sketch sent, the seed is that of Abrus precatorius, which is a slightly sensitive semi-climbing plant, and when crushed has very much the fragrance and taste of Liquorice. It may be cultivated in a warm greenhouse. It also known under the popular name of "The Weather Plant."

Fungus on Carpentaria californica: *H. F.* The fungus attacking the Carpentaria is Cladosporium epiphyllum, and if only a few leaves are affected these should be removed and burned. Badly affected shoots should also be cut out. Spray the shrub with a solution of liver of sulphur made by dissolving one ounce of potassium sulphide in three gallons of water.

Weevils in Greenhouse: *W. B.* The beetles received are specimens of Otiorynchus sulcatus, a close relation of the common raspberry weevil, O. picipes. The larvae feed on the roots of plants and remain through the winter in this position. In May outside, and earlier in greenhouses, the adult beetles come out to the surface, feeding at night. They will soon pair if they have not done so already, therefore it is very important to kill them before the females lay eggs to infest plants for the next year. Killing by the use of lead arsenate paste is not difficult if a sufficiently strong enough mixture is used. If the plants which are being eaten can be sprayed use the following: lead arsenate paste, 1½ oz.: water, 1 gallon. Mix the paste with a little water to a cream, then add the rest of the water. Stir or shake well before spraying. If for any reason spraying is out of the question, another method must be employed. This depends on the habit of dropping that the insect has at the least disturbance. Two pieces of thin wood or stiff cardboard are taken about 1 foot or 9 inches long. In the middle of the side of each is cut a semi-circular opening in such a way that being opposed round a plant the stem fits in the middle Cover the two cards with grease, and at night go cautiously with a shaded light into the greenhouse. Place the cards round the plant and jar the latter. The beetles will fall off and be caught in the grease.

Communications Received.—W. K.—J. W. B.—W. R. D.—S. A.—J. C.—L. R.—C. R., Devon.—V. P.—J. C.—J. B.—H. P.—Lady M.—W. R. D.

THE

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 51.5.

Actual Temperature:—
Gardeners' Chronicle Office, 5, Tavistock Street Covent Garden, London, Wednesday, April 30. 10 a.m.: Bar 29.6°; temp. 45°. Weather, Rainy.

The Beet Root of Cultivation.[*] As is universally acknowledged, Pierre Louis François Lévéque de Vilmorin, whose portrait serves as the frontispiece of Monsieur Vilmorin's book on the heredity of the cultivated Beet, was the pioneer in ameliorating the Sugar Beet and making it one of the most important of European crops. The interest—both scientific and commercial—which the house of Vilmorin has taken for the better part of a century in this crop, is sustained at the present day. This, indeed, needs must be, for to maintain a strain of high sugar content means constant work, and to improve upon existing strains even more arduous labour. In this volume M. Vilmorin considers the fundamental questions relating to the different Beets—Sugar Beets, forage Beets and garden Beets. First among these fundamental questions is the origin of cultivated Beets, and those who have studied the origins of almost any kind of cultivated plant will not be surprised to learn that in spite of long-continued studies the origin of cultivated Beets is still wrapped in obscurity. The genus Beta is composed, according to the *Index Kewensis*, of nineteen species, of which M. Vilmorin allows fifteen to be valid. Some are annuals, some biennials, and some perennials. Seven, including Beta vulgaris, are of maritime habitat. The Beet, B. vulgaris, is widely distributed throughout the world. It has been collected in all parts of the coast line of Europe and also in central and south America, and in China. In some parts of its range it behaves as an annual, but in others it is biennial in habit. A striking fact observed by M. Vilmorin is that in none of the wild Beets which have been cultivated is the red (or yellow) pigmentation so rich as in many cultivated forms. The wild forms generally have little or no pigment in their roots. The suspicion therefore arises that the cultivated Beet is a hybrid and that its characteristically deep pigmentation has been contributed by some species which has crossed with B. vulgaris—possibly B. patula. The fact that the flower of the Beet is habitually cross-pollinated adds cogency to this conjecture. Indeed, in seed raising, so apt are forms of cultivated Beets to cross that it is necessary to grow any one form about one thousand yards from any other Beet in order to avoid risk of hybridisation. Needless to say, for more critical work, for example for the isolation of pure lines, this precaution is not enough and each plant must be covered with fine muslin. This practice, however, carries with it serious inconvenience, for the Beet, like sundry other plants—Maize for example—yields relatively poor plants when self-fertilized. Wherefore, after isolation of a pure line has been achieved, vigour has to be restored to it by cross-fertilization between the members of the line. Needless to say the Beet lends itself admirably to selection, for, behaving as it does as a biennial, each root may be sampled separately for its sugar content and those which give the best yield used as seed parents. It is extremely interesting to learn, from M. Vilmorin's account of Louis Vilmorin's methods, that the modern practice of breeding from a single plant was anticipated and followed by Louis Vilmorin when he began his epoch-making cultivations of the Sugar Beet. It might be supposed that once a highly yielding strain is obtained the rest would be easy. This, however, is not the case. Not every individual Beet with a high sugar content transmits the quality of high sugar yield to its offspring. In some it is, as it were, a sort of happy accident, whereas in others it is an inward grace, and only from the latter may offspring characterised generally by high sugar yield, be bred. As a result of the systematic breeding of the Beet, yields so high as twenty-three per cent. of sugar and even more may be obtained. Yet it is curious that wild Beet which ordinarily has thirteen per cent. may occasionally be found with twenty or even more per cent. of sugar. Whether yet higher sugar content may be obtained is doubtful. Excess of sugar in the Beet seems to be attended by disturbances of growth; therefore it would appear that it is better to aim at a uniformly high average yield rather than at one still higher which may, however, give less owing to the roots not maturing properly. The volume is illustrated by numerous pictures which give a vivid impression of the extraordinary range of variation of the Beet, and by no means the least interesting are the figures of Spinach Beets with their poorly developed roots and abnormally large leaf-stalks and leaves. The yellow varieties appear to have sprung from B. Cicla, but that does not help much, for the best authorities regard that form as nothing more than a variety of B. vulgaris. It looks as though the mystery of the origins of cultivated plants is likely to remain unsolved in spite of the fact, as George Eliot says somewhere, "men will always play at trying to discover the origins of things." There is, of course, the hope that investigation of the chromosome numbers of different species of wild Beet may throw light on this subject, but we fear that the hope is but slender. Notwithstanding this serious gap in our knowledge, the information with respect to this plant is very great, and none has contributed a larger share than the Vilmorins. No one, who reads M. Vilmorin's account of the scientific results which have ensued from the investigation of Beta vulgaris, can avoid the reflection that in taking up the large-scale cultivation of Sugar Beet—an enterprise greatly to be commended—this country has much leeway to make up. If this enterprise is to reach a full measure of success there will be required not merely an exploitation of the knowledge gained by continental sugar growers, but also a permanent organisation for carrying on investigations calculated to discover methods whereby the crop may be best cultivated in this country. The admirable research organisation which our Ministry of Agriculture has built up should be capable of undertaking this work in spite of its manifold nature. There are questions of cultivation to be investigated. Continental practice appears to show that extremely deep cultivation is essential if heavy crops, rich in sugar, are to be obtained. There are also questions concerning seed supply. Large quantities of seeds used on the continent are grown, we believe, in Spain, and it is a question certainly worth investigating whether seeds from such a source are likely to give the best results. This question, however, would in all probability be best left to our own seedsmen to investigate. We personally should like to see the raising of Sugar Beet seeds—as well as others—extended throughout the Empire, and we see no reason why, with co-operation between the Ministry and the seed growers, this should not be done.

The Rose Annual.—The *Annual* issued by the National Rose Society for 1924 is full of interesting matter to Rose growers. The book is freely illustrated by coloured plates of Roses, including most of the sorts that gained awards last year. These plates are only moderately good and the backgrounds, such, for example, as in the plate of Betty Hulton, are not exactly happy, and even in the best reproduction of all—that of Rose Allen Chandler (facing page 113), the use of a bluish background detracts from the effect. The frontispiece is a portrait of Mr. Frank Cant, who is the oldest living member of the Society, for he joined the National Rose Society in the year of its foundation, 1876. The Rev. J. H. Pemberton's reminiscences, in an article entitled "A Sprig of Rosemary," are very interesting, and his references to Dean Hole, the Rev. H. H. D'Ombrain, Pockin of Hereford, Whitwell of Darlington, T. B. Hall, of Rockferry, and other prominent rosarians will interest all lovers of Roses. Mr. A. E. Coxhead, one of the most successful amateur growers, has an excellent article on "Roses in the Suburbs." He gives first-hand experience and those with gardens near large towns will find his list of varieties and hints on growing them of great value. Several writers have given their experiences of the newer Roses introduced since 1917, and those who wish to grow Roses for various purposes will find the Rose analyses compiled by the Editor a useful guide. It is interesting to learn that the most popular Roses exhibited by nurserymen are George Dickson and Mrs. Charles Lamplough, both of which head the poll with twelve votes, while the most popular exhibition Roses shown by amateurs are Augustus Hartmann, Frau Karl Druschki, George Dickson, Gorgeous and Mrs. Foley Hobbs, all of which received thirteen votes. Taking the two sections together we find that George Dickson received the largest number of votes as an exhibition variety. In the lists of Roses for general garden cultivation there are two tables, for growers in the north and south respectively. In the northern section Christine heads the list in both the nurserymen's and amateurs' tables; Golden Emblem, Lady Pirrie and Los Angeles received the same number of votes, namely seven, in the nurserymen's table, while General McArthur, Hugh Dickson, Isobel, Lady Pirrie, Mrs. Henry Morse, Mrs. Wemyss Quin, Ophelia and Red Letter Day, all received the same number of votes, namely five, in the amateurs' table. For gardens in the south the highest number of votes in the nurserymen's section are given to Golden Emblem, K. of K., Los Angeles, Margaret Dickson Hamill, and Red Letter Day, while in the amateurs' table the highest number of votes, namely nine, are awarded to Los Angeles, Mrs. Henry Morse, Ophelia and Red Letter Day. Taking the whole of the votes collectively in the tables of Roses for general cultivation, Los Angeles heads the list with twenty-six votes. Apparently the best six Roses for standards are General McArthur, Caroline Testout, Frau Karl Druschki, Hugh Dickson, Mme. Edouard Herriot and Ophelia.

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[*] *L'Heredite chez la Betterave Cultivee*, by Jacques Leveque de Vilmorin. Published by Gauthier-Villaro and Cie. Paris, 1923.

The Ministry of Agriculture's Exhibit at Wembley.—The Ministry of Agriculture has arranged an exhibit for the British Empire Exhibition, Wembley, which shows certain of the advances which have been made in agricultural science in recent years and the work which is now being carried on in agricultural research. The exhibit has been divided into the following general groups:—(1) animal breeding and nutrition, including dairying; (2) veterinary science; (3) soils; (4) plant breeding; (5) horticulture; (6) plant pathology; (7) agricultural machinery, and (8) agricultural economics. Under the first group such interesting matters as the effect on milk of summer versus winter feeding of cows, and other factors controlling the production of milk, will be illustrated. Under group (4) the important work in improvement of Wheats at the Cambridge Plant Breeding Station, and in the improvement of Oats at the Scottish Plant Breeding Station, will be shown. The final testing on a field scale of improved varieties of Cereals, and the dissemination of seed from the National Institute of Agricultural Botany will also be dealt with. In addition, certain films have been specially prepared for the Exhibition, and amongst them may be mentioned "The Loaf of Bread," "Clean Milk," and "Home Grown Sugar." The gallery in which the exhibit will be shown is on the first floor of the Government Pavilion and will be known as the "Ministry of Agriculture's Gallery." Its scheme of decoration will be a feature of especial interest as it comprises twelve drawings from an English manuscript of the 12th Century, showing, in the quaint art of the period, the agricultural occupations suitable to each month of the year. A printed guide to the exhibit has been prepared, and a guide lecturer, who will explain the exhibits to visitors at stated times during the day, has been appointed by the Ministry.

Mr. William Allan.—The Spring Flower Show of the Norfolk and Norwich Horticultural Society which was held in the ancient St. Andrew's Hall, Norwich, on April 24, 25 and 26, was made the occasion of a most interesting, if not unique, function. At the opening ceremony the Sheriff of Norwich (Frank Havers, Esq.) presented to Mr. William Allan, the veteran gardener at Gunton Park, the large Gold Medal of the Society with the following inscription:—"Presented to Mr. William Allan, of Gunton Park Gardens, in grateful recognition of 56 years generous support as an officer and exhibitor, 1867 to 1924." There are few societies who are so fortunate as to have amongst their most active workers a gentleman with such a long record of distinguished cultural skill. Mr. Allan was appointed gardener to Lord Suffield in 1867, and having served under three generations of the family is still carrying on his work at Gunton in precisely the same manner as when first appointed. On the morning of the Norwich Show this enthusiastic gardener, in spite of his eighty-three years, was busy arranging his seedling Daffodils and discussing the merits of the different seedlings with a zest and up-to-date knowledge which is proof, if any were needed, of the close touch he keeps with new introductions in all branches of horticulture. Since 1867 Mr. Allan has exhibited flowers, fruits and vegetables not only in Norfolk but throughout England and his exhibits have always been recognised as showing cultural skill of a high order. This capable gardener has raised many fine new varieties of fruits and vegetables, and we are specially indebted to him for several excellent sorts of Strawberries. The introduction of novelties to name only a few, Gunton Park Melon, Allan's Reliance Onion, and Allan's Incomparable Cabbage, indicates a wide range of work and when is added to his long record the great attraction of a peculiarly winning and cultured personality, it is especially fitting that recognition should be given at least by the Society, which, being amongst the oldest in the country is able to record that it retains the active support of a distinguished gardener who has given 56 years of splendid service and who will, it is hoped, be spared for many years more. The many friends and old pupils of Mr. Allan—and there are very many throughout the country—will, we feel sure, rejoice in the honour accorded to "Allan of Gunton."

MR. WILLIAM ALLAN.

Experiments with Bacterised Peat in Potatos.—Some years ago the late Prof. Bottomley placed on the market a fertilizer known as Humogen, a peat preparation obtained by treating raw peat with "humating" bacteria and the nitrogen fixing organisms, Azotobacter chroococcum and Bacillus radicicola. The article, as first distributed, proved to be a very valuable plant food, and its preparation on a large commercial scale was undertaken by the Manchester Corporation, but unfortunately difficulties arose in obtaining a uniform product, with the result that the process was abandoned. Now, we understand, the treatment of the peat has been perfected, and the preparation—which has been renamed Humophos—is being made by the late Prof. Bottomley's son at Slaithwaite, Yorkshire. Experiments have recently been conducted at the Edinburgh and East of Scotland College of Agriculture with a view to testing the effects of Humophos as compared with farmyard manure. The crop tested was Potatos, the variety being Field Marshal. The results show that the yield per acre was 16 tons, 10 cwts., 70 lbs. on the plot treated with 10 cwt. of Humophos and 8 cwt. of artificials per acre, as against 14 tons, 16 cwt., 14 lbs. on the plot dressed with 18 tons of farmyard manure and 8 cwts. of artificials per acre. The results, however, should not be taken as conclusive, and consideration is being given to continuing the experiment another year.

Diamond-Back Moth.—The Ministry of Agriculture draws attention to the losses caused by this pest in Leaflet No. 22. The caterpillars feed on practically all members of the Cabbage family, as well as on Turnips and Swedes. The damage done by the insect is not very great in nine years out of ten, but it may suddenly take the nature of an epidemic and, in a fortnight, almost without warning, crops attacked may be ruined completely. The caterpillars feed on the undersurface of the foliage, leaving only the brown, shrivelled, upper skin and the mid-ribs. The methods recommended for dealing with this moth, which is named Plutella maculipennis, are to brush the caterpillars from the undersurface of the leaves, and to dust the latter with some deterrent, such as soot and lime, or to drag bags moistened with paraffin over the plants. Nicotine powder, applied by the use of a dry sprayer, gives good results, but it is important to force the powder well on to the plants from below. The gardeners' simple remedy of dusting soot and lime over crops to destroy insect pests serves another valuable purpose in that the materials stimulate the plants in the seedling stage.

Scarcity of Potatos.—Those who study the market prices published in this journal will have noticed a steady increase in the value of Potatos week after week. At the present time popular sorts such as King Edward and Arran Chief are being sold for more than double the price they realised in the corresponding weeks of last year. According to *The Agricultural Market Report* for April 25, published by the Ministry of Agriculture, best King Edwards now average £13 10s. per ton, an advance of about £1 on the week, and three times the price ruling at this time last year. First quality Arran Chief Potatos average £11 16s. per ton as against £10 16s. last week and £7 2s. at the beginning of January. At Wisbech buyers are reported to be very keen, and prices have advanced £2 to £3 per ton on the week, the chief advance being for white varieties. Imports of Potatos registered during the week ending the 19th April amounted only to 1,852 tons, as against 3,345 tons in the previous week. The chief sources of supply were Holland, 587 tons; Poland, 350 tons; Belgium, 284 tons; Canary Islands, 248 tons, and the Irish Free State, 155 tons. Prices of imported old and new Potatos are very firmly maintained, first quality Channel Isles new Potatos averaging 9½d. per lb.

The Swiss Fete des Narcisses.—On the last day of May and the first day of June, the beautiful Fête des Narcisses, a Swiss floral festival which has always commanded the interest and admiration of British visitors, will take place at Montreux. Last year, when the Fête was held a day or two later, a Russian ballet figured among the attractions, and there were exquisitely decorated cars depicting peacocks, butterflies, and the like. Lovers of the artistic and beautiful will, it would seem, be far from disappointed on the coming occasion since prospects generally are more than pleasing; in fact, 1924 is almost a parellel to 1922, when Sir Richard Temple, on May 27, wrote to *The Times* from his much-loved Montreux on Lac Leman:—"And now as I write, though there has been an inclement winter here, as elsewhere, I am looking out from my window on to a cloudless sky under which the snows are dazzling white and the sheen on the hills perfect; the lake is glassy still with just a suspicion of cool breeze; every spring flower is in bloom under the trees and in the hillside grass; the Narcissus is already carpeting the hills with patches of white, and the Roses, so varied and profuse here, are waking into blossom literally everywhere.' In a week the whole place will be a wonderful blaze of colour ready for the Fête des Narcissus." Thus, while the actual Fête itself is beautiful beyond description, the words of Sir Richard who wrote of Montreux, with its old picturesque architecture, as "Switzerland *in excelsis*," will fire the imagination at the close of a winter similar to that of 1922.

Squirrel Depredations in Scotland.—Sentmentalists may have a passing fondness for the squirrel gambolling in our woodlands, but few people outside the ranks of foresters and timber-buyers are aware that throughout the North of Scotland alone it would be no exaggeration to state that hundreds of thousands of pounds on the value of timber have been sacrificed through the activities of the squirrel. This is the opinion of Mr. R. L. Anderson, head forester to Lord Lovat at Beaufort Castle, Inverness-shire. Mr. Anderson lays great stress on the difference made to the value of timber by the ravages of the squirrel's sharp teeth and thinks that even those interested in forestry do not fully realise the damage done by them amongst growing woods. Mr. Anderson emphasizes the need for co-operation among woodland proprietors to eliminate the pest.

Appointments for the Ensuing Week.—Sunday, May 4: Wakefield and Northern Tulip Society's meeting. Tuesday, May 6: Croydon and District Horticultural Society's meeting; Royal Caledonian Horticultural Society's meeting. Wednesday, May 7: Royal Gardeners' Orphan Fund Annual Festival dinner at the Hotel Victoria; Royal Agricultural Society's Council meeting. Friday, May 9: Royal Horticultural Society of Ireland Council meeting; Manchester and North of England Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Checking the Potato Disease.*—It may interest the experimentalists in Potato growing to know that Count le Lieur, of Ville sur Arce, a French gentleman of great horticultural experience, has hit upon a plan of stopping the disease, which he assured us has produced the best results. He plants in a greenhouse the soundest Potatos he can find; and when the stems are well in leaf he layers their points. As soon as the points are rooted, they are separated from their parent with a ball of earth, and transferred to the open ground, not later, if possible, than the month of June. These plants produce, he says, perfectly sound tubers in the course of the autumn; and the Count assures us that such tubers, if used for seed in the following year, produce a crop entirely free from disease. This is one of the few proposals which deserve serious attention, and we recommend the experiment to immediate trial. *Gard. Chron., May* 5, 1849.

ALPINE GARDEN.

ERIOPHYLLUM CAESPITOSUM

Eriophyllum caespitosum, known also as Bahia lanata, will succeed in poor, dry situations in full sun. Grown in dry soil and in a situation exposed to full sunshine the plant will produce an abundance of its golden-yellow, Composite flowers, which are brilliant and pleasing above the grey or whitish foliage which is produced with equal freedom. Planted on a dry slope or flat space in the rock garden it will hang over the rocks or stones, covering them with its pretty foliage and golden blooms.

It is not difficult to raise E. caespitosum from seeds, and it may also be propagated from cuttings. Seeds, however, afford the readier means of securing a good stock to begin with. The plant is hardy in the situations suggested, but has a great antipathy to excessive wet in winter. This bright member of the Composite family is a native of the mountains of North-west America.

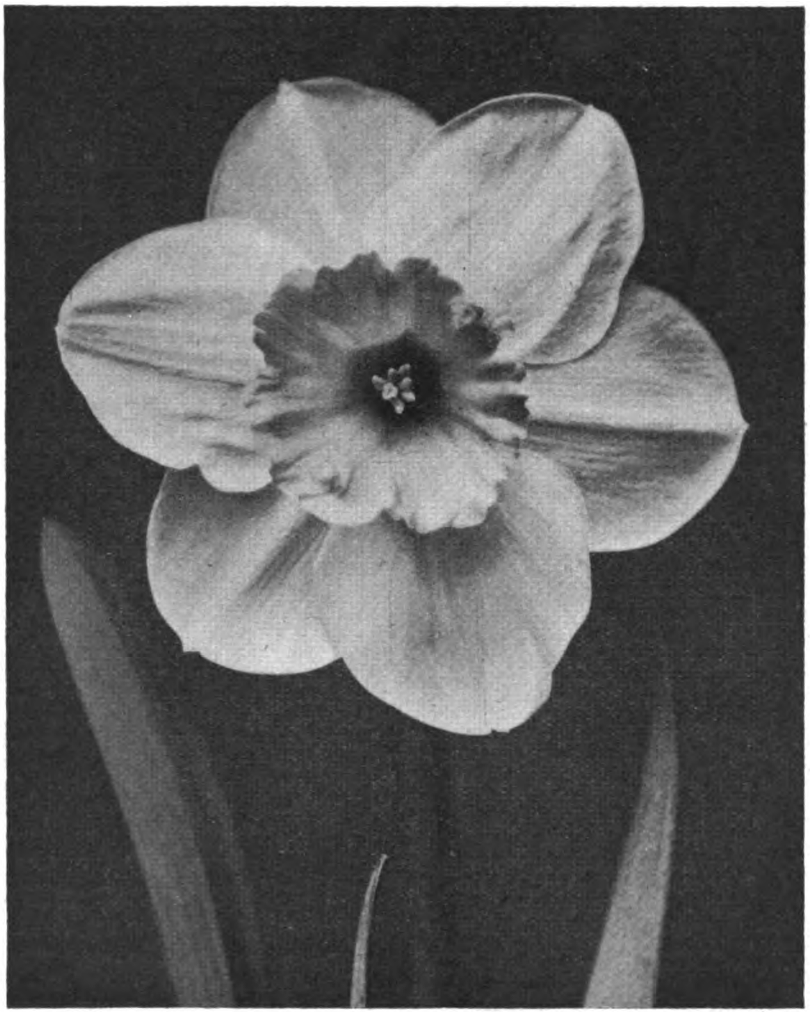

FIG. 103.—NARCISSUS REWA; THE FINEST VARIETY EXHIBITED AT THE MIDLAND DAFFODIL SOCIETY'S SHOW (SEE P. 259).

DIANTHUS PETRAEUS.

It must be forty years since I first became acquainted with Dianthus petraeus, through becoming the possessor of its double form, D. petraeus plenus, which at that time much delighted me with its sweet little double flowers on six inch stems above the narrow grassy leaves. It was sweet in every sense of the word, both in beauty and fragrance.

For many years this doubled-flowered plant appeared to be very scarce in commerce, but now it is listed in catalogues. To many of us the double variety yields pride of place to the single one. It is a pleasing ornament of the rock garden or stone margin of the herbaceous border. It makes a mass of spreading, narrow, grey foliage above which rise the clusters of white flowers, which are deeply fringed and which constitute a most attractive feature over the rocks of the alpine garden. The stems are about six inches in length, and the double-flowered variety has the defect of the clusters of blooms being too heavy to enable the stems to keep erect, and sometimes this is the case with the single one as well. This defect is not so serious as it would be with plants on the level as the flowers show well hanging over a stone. *S. Arnott.*

ANDROSACE PYRENAICA.

This minute species of Androsace may be grown successfully in crevices between rocks with sandy peat and loam in them, or it will succeed in an ordinary pocket in the alpine garden if the surface be covered with stone chippings. The tiny white flowers, with yellow eyes, developed on scapes about one-quarter of an inch high, are very attractive, and a well-flowered plant is a pleasing object. The whole plant is only one-inch in height and somewhat resembles A. imbricata and A. helvetica. Plants of A. pyrenaica commence to flower in April and continue over a considerable period. Full sunshine with abundant moisture at the roots are essential to success with these diminutive Androsaces. *Ralph E. Arnold.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Calanthe.—The deciduous Calanthe vestita, C. Veitchii, C. Harrisii, and others of this section, still hold a prominent position for decorative purposes, either as plants or cut blooms. The plants are commencing to grow and when the new shoots are a few inches high, and fresh roots developing, they should be re-potted, after being thoroughly overhauled. Turn them out of their pots, remove all the old rooting materials and shorten the roots, leaving just sufficient length to hold the pseudo-bulb firm in the soil. Cleanse the plants of scale insects, taking care in doing so not to rub or injure the buds or the young growths at their base. Remove the back pseudo-bulbs leaving only those of the previous year. As regards re-potting, the usual practice is to plant the largest sized pseudo-bulbs singly in five- or six-inch pots, but if house room is limited five or six moderately sized pseudo-bulbs, or three or four of the largest ones, may be placed in a single seven-inch pot. Efficient drainage is essential; the pot should be about half filled with clean crocks, covered with a thin layer of fresh turfy loam, or rough Sphagnum moss. A suitable compost for these Orchids consists of good fibrous loam broken in rather rough portions and the earthy particles shaken out; some chopped Osmunda, or A.1. fibre, a little dried cow manure crushed small, some bone meal and sufficient crushed crocks to render the compost porous. The materials should be well mixed. In re-potting, press the compost with moderate firmness around the base of each pseudo-bulb, and keep the soil about one inch below the rim of the pot in order to ensure room for copious waterings and sufficient space for applying a top dressing when the plants have become thoroughly established and a number of roots appear on the surface of the compost

Treatment of Calanthes after Re-potting.—After re-potting them the plants will require little or no water until the young roots have ramified well in the compost, and have grown near to the sides of the pots, when the amount of water should be increased gradually. When the soil is well filled with roots copious supplies of moisture will be needed all through the plant's season of active growth. The plants should be grown in plenty of heat and atmospheric moisture but not be exposed to too much bright sunshine. The back pseudo-bulbs may be employed to increase the stock of any particular variety, placing them on a layer of Sphagnum moss in a shallow receptacle in a warm house; they will quickly produce new growths, when they may be potted and treated in a similar manner to the older specimens.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Disbudding.—This is an important item of routine work and flowering shrubs should receive periodical attention in removing all superfluous or badly placed growths as they appear. Not only will this save much time later, but the remaining growths will be enabled to make better and well-ripened wood and thus ensure a good foundation for next year's flowering.

Iris Kaempferi.—Although this beautiful Iris needs an abundance of moisture and is essentially a lake-side plant, it thrives equally in positions well above the water level. Growth is now becoming active and planting should cease. I. sibirica is a valuable companion for similar positions near the lake. Both derive great benefit from a mulching of half-decayed manure applied at this season.

Rhododendrons.—Nothing is so helpful or tends to prolong the period of flowering of these evergreen shrubs as a liberal mulch of vegetable manure, which not only protects the multitude of fibrous roots near the surface from the effects of drought, but also supplies nourishment to the plant in Nature's own way. Well established plants benefit from this application equally with newly planted ones, but the lack of it often prevents the latter from becoming established during prolonged periods of drought in spring and early summer. It is wise to remove the flowers immediately after they fade to prevent the formation of seed pods and thus conserve the energy of the plant for future growth.

General Remarks.—The longer, warmer days of May promote the rapid growth and development of plants, and while this brings joy and encouragement to the gardener it also imposes the necessity for increased attention and vigilance Not only do the plants he wishes to cultivate make headway, but weeds and pests of every description become increasingly troublesome and may wreck his hopes unless dealt with promptly. To impede the germination and growth of weeds frequent hoeings and surface cultivations should be practised, and it is particularly important that the surface soil should be moved so soon as practicable after heavy rainfalls. It is commonly said that surface cultivation serves the double purpose of keeping the soil free from weeds and aerating it for the benefit of growing crops; but there is another and equally important service which is of great moment at this season. A new cycle of life of many soil pests begins at the present time with the emergence of the perfect insect to deposit its eggs in the surface soil near its plant host. The insects instinctively choose favourable spots for the deposition of their eggs, and the constant stirring of the surface soil upsets these favourite spots and thus largely contributes to the control of the pest in its initial stages. Many insects which infest plants increase with amazing rapidity, and to control them promptness of attack is the essence of success; thus the grower should concentrate on preparation and immediate attack to combat these infestations.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

The Orchard House.—By this date most kinds of fruit trees under glass will have passed out of bloom and the young fruits will be swelling freely. It is not wise to be in too great a hurry to thin the crop severely; rather wait until such time as it can be plainly seen which will form the best shaped specimens, and it must be remembered that some of the fruits will drop. Although I do not advise thinning the crop too severely in the early stages, I do not advocate over-cropping, nor do I by any means advise leaving the thinning of the crop until the fruits are stoning or forming pips as the case may be. Pears and Cherries, for instance, will often swell to quite a large size before they show signs of dropping. This is sometimes caused by unripe wood of the previous year's growth, or it may be due to dryness of the border when the trees formed their buds during the previous autumn. Now that the trees have passed out of bloom they should be sprayed with a nicotine wash as a preventive against aphis. If the green aphis is allowed to spread unchecked on Plums and the black aphis on Cherries until it curls the foliage, the pests are not easily destroyed. Pinch out all growth at the fifth or sixth leaf. From now onwards trees growing in pots will need feeding with liquid manure, which should be given in the mildest form to commence with and applied more freely as the season advances. Trees planted in borders should be well supplied with water. No hard and fast rule can be given as to when water is necessary, but one must be guided by outside conditions. With greater sun power and drying winds the borders will dry out very quickly. On all bright days the syringe may be used freely overhead, using, if available, soft rain water.

Tomatos.—Make sowings of Tomato seeds at intervals to meet the requirements of the establishment. The later seedlings should be potted and grown near the roof glass to promote a sturdy growth.

PLANTS UNDER GLASS.

By F. J. Clark, Gardener to Lt.-Col. Sir George Holford, Westonbirt, Tetbury, Gloucestershire.

Euphorbia jaquiniaeflora.—A batch of cuttings of this useful winter-flowering plant should be inserted now, and a further batch may be struck some three weeks later for successional flowering. The cuttings, procured from plants which have been cut back and started a few weeks previously, should be from two to three inches long, and made with a "heel." A single cutting placed in a thumb pot, or three cuttings in a slightly larger one, are the usual methods adopted. The young plants may then be potted with but little disturbance. The cuttings will root readily in a close frame in a warm house over a little bottom heat.

Euphorbia pulcherrima (syn. Poinsettia).—Cuttings of this plant may also be inserted now from plants which have been prepared as in the case of E. jaquiniaeflora, and chosen in the same manner. One cutting only, however, should be inserted in a small pot. It is essential that the pots, frame and everything should be prepared in readiness before the cuttings are taken from the old plants. Owing to the profuse "bleeding" of these Milkworts on being cut or broken, growers usually dip the bases of the cuttings in some dry material, such as old powdered lime, flour or sand. I have found the best results from the use of dry Portland cement. Each cutting should be dipped in the cement so soon as it is severed from the old plant. Euphorbias need lime in the compost, therefore it is advisable to add a goodly portion of old lime or mortar rubble to the soil used for successional pottings.

Primula sinensis.—To raise plants for autumn and winter flowering a little seed should be sown now (if not already done) in light, sandy soil. The pans should be prepared and the soil in them watered on the day previous to sowing the seeds. The sowing to provide plants for early spring flowering may be deferred for a few weeks.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Strawberries.—Strawberry plants in warm localities will soon be pushing forth their flower spikes; before this happens the ground between the rows should be hoed and then covered with clean straw, or, failing this, light strawy litter from the stable yard. Hay should not be used on any account as it is liable to impart an undesirable flavour to the berries, especially in wet weather. In the event of a late frost occurring a little of the straw pulled over the trusses will prevent any damage ensuing. Protection of the berries from birds should also be provided before the fruits have set, as they are apt to be trodden on if left too late before covering. Stout Ash poles should be placed at intervals around the bed, also some through the middle of the bed. They should be driven in to the ground leaving about five feet above the bed surface. Place fairly strong wire on the tops of the poles to carry fish netting. Continually removing the nets to gather the fruit is not only tedious but it is also liable to tear the nets.

Thinning Fruits.—Where the fruits on wall trees have set freely and require thinning, this should be done so soon as the best specimens can be decided upon. All badly placed fruits and very small ones should be removed first. Then, after a few days, take off those of a second size, leaving the best, and only one of a cluster. The number to leave finally will depend largely on the condition of the trees. Young, vigorous trees will finish a good crop much better than old trees, and the fruit will be much finer. In the case of Apricots and Peaches, a fair crop would be about one fruit to every square foot of tree surface, or perhaps less than that in the case of the former fruit. With older trees it is a good maxim to crop well when the chance occurs and feed the roots liberally at the same time; by this procedure the tree will not be unduly exhausted for another season's fruiting.

THE KITCHEN GARDEN.

By WALTER Y. STAWARD, Gardener to MRS. JOHN FEENEY
The Moat, Berkswell, Warwickshire.

Rhubarb.—Seeds of Rhubarb that were sown some time ago have germinated and the seedlings are ready for pricking off into boxes containing good, loamy soil; or 3-inch pots may be used instead of boxes. Place the seedlings in a frame and maintain a fairly warm temperature in the frame for a few days. Sprinkle the seedlings overhead and never allow them to become dry at the roots. Gradually harden them as the plants get larger, until they are finally planted out.

Early Potatos.—Where early Potatos are appearing through the surface a little more soil should be drawn around them for protection from frost. Those in frames should have plenty of air admitted both top and bottom; a good plan is to place a block of wood at each corner of the sashes. If the plants are well advanced the sashes may be removed altogether on fine, sunny days, but the lights should be replaced on the first signs of frost.

Brassicas.—Brussel Sprouts, Cabbages, Cauliflowers and Kales intended for early use are now well hardened and ready for planting out-of-doors. See that the ground has a good dusting of Vaporite before planting to ward off the maggot that attacks the roots. This pest did a vast amount of damage to Brassicas last year and the year previous; fine beds of plants withered in a short space of time and thousands of plants were rendered totally useless through this root maggot.

The Dutch Hoe.—Nothing contributes more to good cultivation and success in the garden than the continued use of the Dutch Hoe as soon as seedlings appear. Hoeing destroys weeds in the seedling stage, and keeps the surface of the ground from becoming hard and cracking in dry weather.

Onions.—Hoe between the rows of Onion seedlings to kill weeds and promote healthy growth in the Onions. If plenty of cow manure is available a mulching of that material should be applied along the rows; in dry weather the manure will keep the soil moist. Onions need plenty of water at the roots and they should be sprayed overhead in the evenings.

Runner Beans.—Where trenches have been made some time ago, seeds of Runner Beans may be sown direct into them. Seedlings of earlier sowings made in boxes will now be ready for planting out-of-doors.

NOTES FROM GLASNEVIN.

LYSICHITUM CAMTSCHATCENSE.

THIS remarkable Aroid is annually one of the most striking objects in the garden towards the middle of April and onwards. The large, rich yellow spathes, which appear before the leaves, are conspicuous from a considerable distance. When fully developed the spathe and peduncle combined reach a height of from 18 inches to 2 feet. As the flowers fade the leaves begin to grow rapidly and during summer attain a length of 3 feet to 4 feet and a breadth of a foot or more, and are then very handsome. Seedlings come up in abundance around the parent plant. Lysichitum is perfectly hardy and flourishes in the deep, rich, moist soil of the bog garden, and within a few feet of the edge of the pond; in winter it is frequently flooded, without injury. The white-spathed form is apparently establishing itself under the same conditions, but has not yet flowered. L. camtschatcense has a wide range in N.E. Asia and N.W. America.

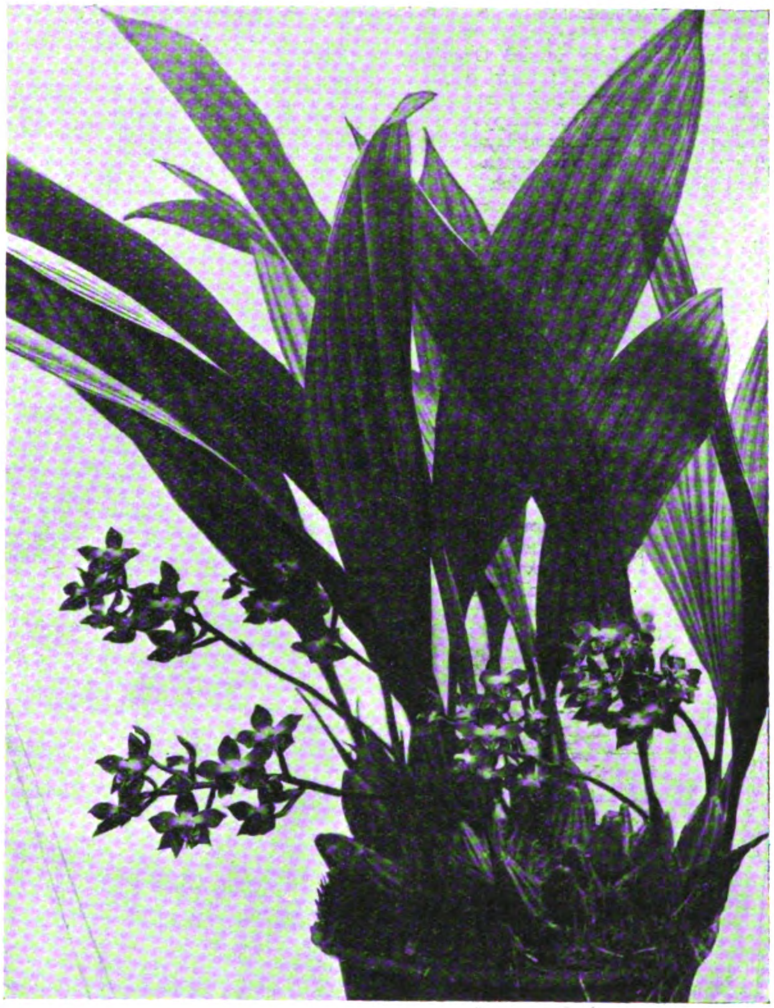

FIG. 104.—MOOREA IRRORATA IN THE GLASNEVIN BOTANIC GARDENS, CARRYING FIVE SPIKES OF FLOWERS.

NARCISSI AND TULIPS IN THE ROCK GARDEN.

Many of the choicer kinds of bulbous plants find a suitable home in the rock garden, some, indeed, only flourish there or where similar conditions exist. Where it is necessary to grow collections of genera and species, as in a Botanic Garden, it is by no means always easy to discover the right place for all the species of even one genus, hence, though it is customary to have beds devoted to plants arranged in their natural orders, the number so grown must always be limited, as the natural habitats of the plants vary enormously. Many of the smaller Narcissi, for instance, do not appear to succeed in conditions which suit the numerous garden varieties. N. Bulbocodium used to die out at Glasnevin until planted in a moraine, where it has thriven happily for ten years. In the same moraine, and quite close to the Narcissus, Saxifraga lilacina flourishes also many other Alpines which used to be frequently lost. The dainty little N. juncifolius also enjoys the moraine and is at present pushing up a large number of flowers. I think it is likely that N. triandrus and N. calathinus will do well under the same treatment, for though now flowering in other sunny parts of the rock garden they do not live indefinitely. Many other small bulbous plants rather difficult to keep are worth trying in the same way, as for instance Tulipa stellata, which we used to lose regularly but which now lives and flowers annually in the moraine. Many other Tulip species are less exacting, and there is now an interesting display from T. Eichleri, T. Fosteriana, T. dasystemon, T. praestans Tubergen's var., T. sylvestris, T. pulchella, and T. polychroma, with numerous other later-flowering species to follow.

RHODODENDRONS.

The continuous frosts played havoc with many Rhododendrons and I fear that numbers of the yunnanense series will drop many of their buds, which, though not open, had begun to swell. At present R. hippophaeoides and R. polifolium are in full flower and apparently not affected by frost. R. ravum is showing colour; R. rigidum, like a dwarf R. racemosum, is in bloom and occasional flowers are to be seen on R. flavidum. There is good promise from larger growing species, most of which, fortunately, flower later, but already the old Himalayan R. niveum has a few flowers open. R. emasculum, a hybrid of R. praecox, but flowering many weeks later, is just opening its flowers and is very beautiful in its abundant rosy mauve flowers.

ORCHIDS.

One of the most striking Orchids in flower at present is Moorea irrorata (Fig. 104) of which a description appeared in *Gard. Chron.* 1890, vol. 2, page 7, and a figure in 1892, vol. 1, page 489. Since then the plant has grown vigorously and has been frequently divided for distribution. The large, plicate leaves, produced in pairs at the apex of the grooved pseudo-bulbs are handsome alone, but when accompanied by the racemes of orange-brown flowers, the lips marked with yellow and purple, the plant is conspicuous. A coloured figure appeared in the *Bot. Mag.*, t. 7262.

Cyrtopodium, a genus of terrestrial Orchids, is represented by three species now coming into flower, viz. C. Hendersonii, C. punctatum and C. palmifrons. Polystachya campyloglossa is an interesting species with sweetly-scented rich yellow flowers, while P. paniculata has an erect, branched inflorescence of rich orange flowers. Bulbophyllum Kindtianum is a delightful little plant, the flowers small and purple, the lip heavily fringed with long white hairs. The most noteworthy Cirrhopetalums are represented by C. campanulatum, C. Mastersianum and C. Oakesianum; Coelogynes by C. elata, C. Cumingii, C. venusta, C. Huettneriana and C. lactea. Cattleya Lawrenceiana and C. intermedia carnea are handsome, while Lycaste Balliae and L. lasioglossa are flowering freely. Odontioda Madeline is attractive, Phaius Norman is bearing a strong spike of richly coloured flowers and numerous Cymbidiums, including several of the Westonbirt hybrids, add much to the interest and beauty of the Orchid House. Other genera and species flowering and coming into flower include Epidendrum Brassavolae, E. revolutum, E. polybulbon, E. myrianthum, Maxillaria flava, M. variabilis nigra, Vanda tricolor in variety, and numerous small-flowered botanical Orchids. *J. W. Besant*

NOTES FROM A WELSH GARDEN.

EVEN at a time when the rock garden is increasing in beauty and interest every day, I feel little hesitation in according the foremost place to Primula marginata Linda Pope. Farrer was probably right when he stated that this beautiful subject "had other blood in her" than that of P. marginata, but when he infers, as he seems to do, that Linda Pope is a novelty he was surely mistaken, since I am assured that this Primula was known at least twenty years ago. However, in the bolder and greener leafage and the much larger, rounder and more generous flowers which are of an exquisite shade of the softest, clearest, bluest lavender, Linda Pope is surpassingly lovely.

In spite of the harsh winds and destructive frost, Erodium pelargoniiflorum, the first of its race to bloom, has been in flower for several weeks, the large, pinky-white, crimson-blotched blooms rising clear of the hairy, Pelargonium-like leaves.

Although Viola gracilis will always stand alone, its elegance and symmetry unapproached by the many forms which now bear its name, there are among the latter not a few early and pretty varieties. A drift of the white variety, Clarence Elliott, against the velvety jet of Black Knight, affords a black and white effect which is striking and unusual. V. rothomagensis is a quaintly pretty little species in lilac-blue, but in this garden it is short-lived, albeit not so ephemeral as the beautiful V. bosniaca which, despite our best care, seldom endures a second season with us.

Among the mossy Saxifrages in bloom at the time of writing, S. Pompadour is worthy of special note. The blood-crimson of this excellent variety is as fine a colour as that of the old sanguinea superba and the flowers seem to stand the sun remarkably well. An adjoining ledge is occupied by the pure white S. Stansfieldii, the contrast between the two being very pleasing. S. oppositifolia, var. W. A. Clarke, has stood out among others of its kind a glowing ruby-crimson, and the rich rose of the variety Wetterhorn is scarcely less distinct. These and several of the always delightful muscoides set are now (mid-April) all that an unusually late and cold season has to offer.

In a cool, but well-drained, bed Gentiana excisa and Sisyrinchium filifolium each affords a note of distinction, the sea-green, rush-like foliage of the latter and its satiny-white bells being very charming. Antirrhinum glutinosum, which had given but indifferent results for some years, has at length become established from self-sown seed in an old and dry wall, and its ivory-yellow, rosy-lipped flowers are already open. Another attractive little plant, Morisia hypogaea, after remaining seedless for at least ten years, now produces an annual crop of seedlings.

Daphne Cneorum will be yielding masses of its lovely blossoms before these lines are in print, and conspicuous in various shades of orange to palest yellow are the dwarf Barberries and several of the Brooms. Cytisus hirsutus was the first to bloom, being quickly followed by C. Beanii, C. Ardoini, C. kewensis, and others. Another attractive little shrub that is coming into flower as I write is Erinacea pungens.

With the exception of Cytisus monspessulanus, which has been blooming since March, C. purgans is always the first of the taller Brooms to blossom here. The exceptionally rich yellow, delicious fragrance and floriferousness of this neat-habited species should be more widely appreciated. For a warm, sunny spot in early spring there is nothing else of the sort quite so good unless it be the splendid double-flowered Gorse. In combination with the purple of Erica mediterranea and the superb white form of this Heath, the golden-yellow of both the above-mentioned helps to create a bold sweep of colour in our spring Heath slope.

Bryanthus (Phyllodoce) empetriformis has been in full flower for some time at the foot of the Heath garden. Here also that singularly attractive little shrub Pyllothamnus erectus [?] is already opening its rosy blossoms. But there is nothing among our Ericaceous subjects which has excited so much curiosity of late as that little plant Arcteria nana, with its creamy-white, honey-scented flowers, which it has borne since mid-winter. This tiny shrub was excellently illustrated in the *Gardeners' Chronicle* on p. 217. So far it has seemed perfectly content in a cool, half-shady bed mainly composed of Pine wood leaf mould in which several of the lesser Gaultherias, Shortias and plants of a similar nature are established.

Stylophorum diphyllum is a handsome woodland plant whose beautiful glaucous foliage and golden Poppy flowers will not be passed unnoticed. No less can be said of Dicentra formosa which, when grown in a large patch, is especially appealing in spring. Of the many Anemones of the nemorosa set the lovely Robinsoniana still holds its place of distinction. Even so, there are not many of these one could lightly do without in a woodland garden. A. trifolia is a species that is also admirable for any rough place where it can be permitted to make wide drifts of its pure white flowers. A. ranunculoides, an accommodative little plant for naturalising, has a quaint prettiness in its broad yellow rays, and in a cool corner which it shares with several species of Omphalodes, now a drift of purest azure, the deeply cut, silken foliage of A. narcissiflora is crowned with a cluster of opening buds.

The spring-flowering Cyclamens, C. Coum and C. ibericum, are among the most brilliantly coloured of all our woodland plants at this season. They have not naturalised so freely as one had hoped, but whilst seedlings never seem to appear in the moss which abounds about them, a quantity has just arrived in a near-by carpet of Helxine Soleirolii!

The Erythroniums enjoy no less admiration than the Cyclamens. E. giganteum (californicum), in pale chrome-yellow and orange, looks very charming in a patch of Gaultheria trichophylla and other lowly plants are E. g. robustum, with plain green, strap-like leaves and golden yellow flowers; E. revolutum Johnsonii, E. r. Watsonii, and the rose and gold "Pink Beauty," all of them giving the liveliest interest and charm.

Some of the Fritillarias are also happy under the tall woodland trees, and Tulip Clusiana, singularly dainty in rose and white, is coming into bloom where the belated T. Kaufmanniana is only just going over. T. sylvestris major, one of the most delightful of woodland species, is not permanent here and has frequently to be replanted.

Lysichitum camtschatcense is showing several of its great butter-yellow spathes by the waterside, but, with the exception of this, some Globe Flowers, the pretty Anchusa myosotidiflora, Callas and Cardamine pratense fl. pl., always so cheerful with its fine clusters of lilac flowers, there is but little colour in this part of the garden as yet. *A. T. Johnson, Talycafn, N. Wales.*

BULB GARDEN.

NARCISSUS MINIMUS.

FOR garden purposes the name of Narcissus minimus is much more convenient than that given in the Kew *Hand List* of N. minor, var. minimus, or that of your correspondent on p. 185, of N. Pseudo-narcissus minor minimus, but this is a matter upon which there may possibly be a difference of opinion.

My chief object in writing is to endeavour to elicit some information regarding variation in this charming little Daffodil, for which a place should be found in every rock garden. The bulbs at present supplied under the name of N. minimus produce taller plants with larger flowers than those formerly sent to this country, which were, if I am not mistaken, distributed by the late Mr. Peter Barr. I recollect having some of these, and having removed to another garden, after leaving them in my old one, I purchased other bulbs which produced larger flowers on taller stems.

In the course of some correspondence with the late Mr. W. B. Boyd, of Faldonside, Melrose—an ardent cultivator of bulbs—who was exceptionally well informed, he made a remark to the same effect, and all my further enquiries appear to confirm this view. I should esteem it a favour if those who had the bulbs many years ago would give me their observations. I may state that seedlings from this smaller form came true to the parents. *S. Arnott.*

NARCISSUS BULBOCODIUM CITRINUM.

DIFFERING from the type in its somewhat larger sulphur-yellow flowers, this delightful little Hoop-petticoat Daffodil is, unfortunately, not always easy to cultivate: it appears to need a peaty soil or one composed mainly of leaf-mould and provided with ample moisture.

The bulbs succeed admirably in five-inch pots or in pans, and should be allowed to flower naturally in a cold frame; annual disturbance is not advisable, a little top-dressing being far better for the bulbs.

It is a very small plant; the leaves are from four to eight inches long, the scape four to eight inches high, one-flowered, with the flower horizontal or slightly ascendent. The crown is very slightly crisped and irregularly toothed at the throat, the divisions of the limb narrowing to an acute point and ascending. The tube is almost equal in length to the crown.

This is a very delightful little plant for the rock-garden, if the right position can be found for it; it is also a gem for the alpine house, cold greenhouse, or cold frame. *Ralph E. Arnold.*

HARDY FLOWER BORDER.

HYBRID PENTSTEMONS.

The hybrid Pentstemons have a wide range of colour, including blush, white, pink, rose, carmine, scarlet, purplish-violet and purple-maroon, and almost all the flowers have pretty, reticulated lines as though they were pencilled on a white throat. The flowers are large, tubular, and gracefully pendant, similar in shape to those of the Foxglove, but much larger than the latter. They are splendid subjects for grouping in beds or borders, producing a wealth of bloom on stout stems, 2 feet to 2½ feet tall, from June in unbroken succession until September and October, and even later in western and seaside districts.

Planting may be done at any time from the end of April, in a sunny position in good open, garden soil. Soil of a loamy nature, containing a fair proportion of well-decayed leaf-mould and old manure is best suited to the plants, which should be supplied with water during periods of dry weather.

These Pentstemons may be increased from cuttings and seeds; cuttings inserted in pans or boxes filled with a sandy compost root freely in a cold frame during August and September. They may be planted out the following spring.

In cold, bleak districts, the old plants should be cut down and given a slight protections. Seeds may be sown with good results at any time during early spring in gentle warmth, and when the seedlings are large enough to handle, they should be pricked off into boxes, and in due time hardened off in a cold frame, in which they may be allowed to remain until May, when they should be planted in their permanent beds.

A few of the most distinct and attractive sorts are:—Chinoiserie, rose with a white throat; Constance, soft salmon-rose, throat white and prettily veined; James Douglas, shell-pink; Mrs. Forbes, glowing crimson; Negress, dark crimson-maroon; Paul Cambon, dark violet-plum colour; Paul Pfitzer, rich crimson with a conspicuous white throat; and George Horne, crimson-scarlet, with a white throat. For bedding purposes and for freedom in blooming, the following hybrids are exceedingly effective: Myddelton Gem, delicate pink suffused with carmine; Newbury Gem, crimson-scarlet; and Southgate Gem, crimson-scarlet, but with slightly larger flowers than the preceding, and a most continuous bloomer. White Newbury Gem is also very free blooming and a good bedding variety. *W. Logan.*

GEUM LADY STRATHEDEN.

The golden-yellow, double-flowered Geum named after Lady Stratheden (Fig. 105) received the Award of Merit of the Royal Horticultural Society on June 1, 1920, and those who have experience of this plant in their gardens will agree that it is well worthy of this honour. Its scarlet companion, Mrs. Bradshaw, has become one of the most popular of garden plants, not only on account of its rich colouring but also because it contributes to the gaiety of the garden the whole summer through and into the autumn, its display lasting until frost mars its beauty. The yellow variety is equally to be prized, for although some consider it not quite so vigorous or free blooming as the older sort, it has all the qualities of a good garden plant and supplies a rich shade to beds and borders when gardens are most enjoyed.

Both the Geums enumerated give splendid material for use as cut blooms and they would doubtless have been highly prized by the older generation of gardeners who set high value on "ever blowing" garden plants, of which their Sweet Williams, Campanulas, Geraniums, Fuchsias, Nasturtiums, Verbenas, Violas, border Pinks and Oriental Poppies are a few examples.

BOCCONIA CORDATA.

This is a very effective and stately plant suitable for the back part of the flower border or for planting in front of a shrubbery. It has large, lobed, cordate, glaucous foliage, with a silvery under surface, and flower plumes of a delicate creamy buff shade. The plant grows from 5 feet to 6 feet tall, and is in flower from July to September.

POTENTILLAS.

The double and semi-double-flowering hybrid Potentillas are fascinating and interesting hardy border perennials. Their dwarf and slightly pendulous habit render them equally effective for decoration in the herbaceous borders or on the rockery. They grow freely in deeply trenched soil, and their freedom in flowering and general effectiveness should commend them for a position in all collections of border perennials.

The velvety texture of their gorgeous flowers is unique and the blooms last well, maintaining a display from the end of May to September, while their foliage is also very attractive. These double and semi-double forms possess an additional advantage over the single species and varieties by lasting in perfection for a much longer period, both on the plant and when used as cut flowers for decorative purposes, the buds developing perfectly in water.

The varieties are numerous; the following are a few of the best and they may be planted now to bloom this coming summer. All are free flowering:—Brunette, ochre yellow, prettily striped with red; Congo, dark maroon, a very effective sort; Dr. André, bright golden yellow, suffused with vermilion; Drap d'Or, orange and yellow; Fantasie, self yellow, a remarkably free-flowering variety; Le Vesuvé, bright red, flushed yellow; Louis Van Houtte, deep crimson; Ophir, rich velvety vermilion; Panorama, yellow, striped with purple maroon; Vase d'Or, soft yellow; Vulcan, deep coppery red, and Wm. Rollison, orange, flaked with scarlet.

All these plants are easily propagated by division. *L.*

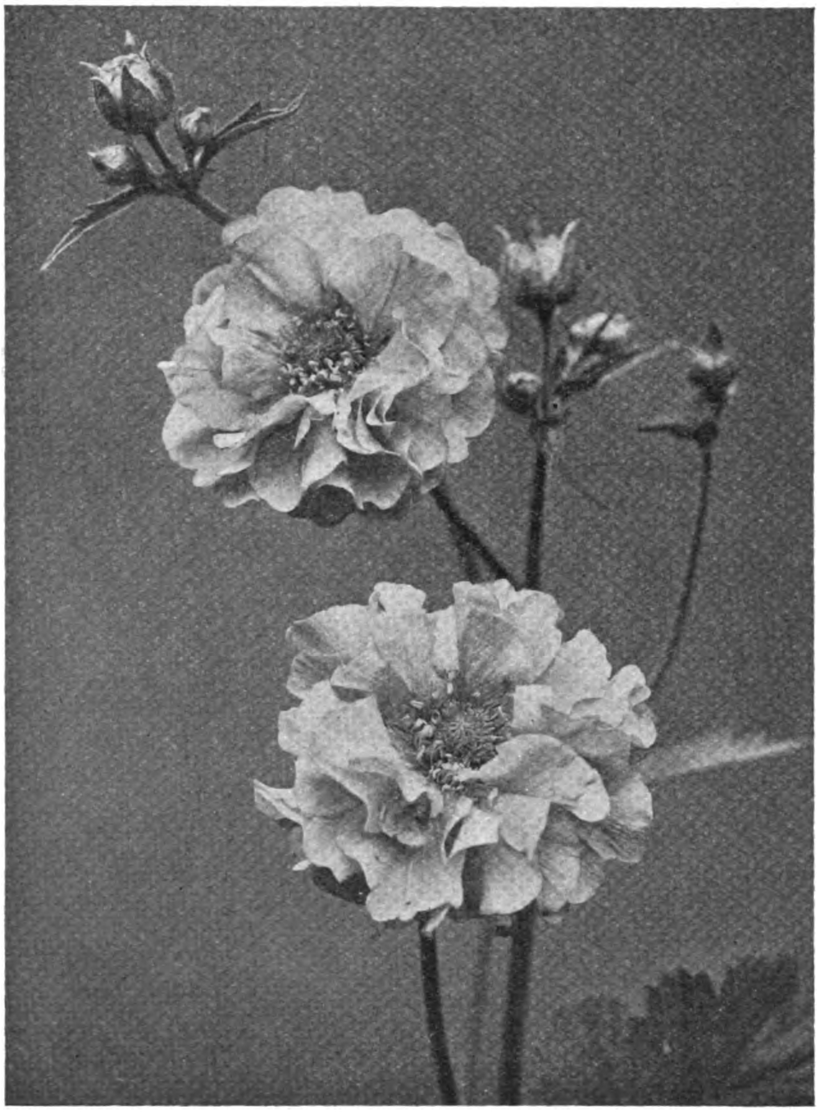

FIG. 105.—GEUM LADY STRATHEDEN.

ARTEMISIA LACTIFLORA.

This is the most showy member of the Wormwood family, and a fine acquisition for the herbaceous border. The plant makes stately growths five to six feet tall and when established and well branched, assumes a pyramidal shape, the lateral branches producing spikes of feathery, Spiraea-like, creamy white flowers to within one foot from the ground level. The blossoms are deliciously scented and produced from July to September. This Artemisia is very effective when associated with blue Asters, such as Miss Eisle, Maggie Perry and Beauty of Colwall; or behind Eryngiums, when the effect is most charming. It is perfectly hardy, and not particular as to soil, but it requires a sunny situation. *W.*

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TWO WILD TULIPS.

AT the London Daffodil Show there were exhibited two vases of Tulips, which seemed to arouse considerable interest. One contained four huge flowers of one of the many forms of Tulipa Fosteriana and the other several examples of the white, yellow, and scarlet varieties of Tulipa Kaufmanniana. Both species are natives of Turkestan, though on this occasion the flowers of the former came from Ireland and those of the latter from the London suburb of Merton. If they will flourish in the moist Irish climate and in the fogs and impure atmosphere of a metropolitan suburb, there is surely no reason why they should not be much more widely grown in our gardens than appears to be the case.

T. Fosteriana has easily the largest and most brilliant flowers of any Tulip species. The inner surface of the petals is always a bright dazzling scarlet and, when they are fully open in the sun, some of the flowers measure as much as ten inches in diameter. The basal blotch may be pure yellow or wholly black, or black shading into or edged with yellow. The three or four large leaves may be pointed and tapering or very bluntly rounded. They may be a glaucous grey or green, and in the latter case either dull or polished, so that a modern botanist, with his centimetre measurements and detailed description of the individual plant, would either have to make an almost unlimited number of species or subspecies or else abandon his usual methods and draw up a very wide description, which would embrace all the various combinations of the essential characters.

How exactly a botanist would distinguish T. Fosteriana from T. Eichleri I do not know and yet, when groups of these two species are grown side by side, they are obviously different. T. Eichleri is a few days later in coming into flower, the colour is a deeper red than that of T. Fosteriana and the very glaucous foliage is rather differently arranged. The leaves are usually four in number, arranged more or less in two opposite pairs, often set at right angles to one another.

Tulipa Fosteriana has a stout, sturdy stem about a foot in height and I have never yet seen a specimen with more than one flower on the stem, though I have seen instances where a particularly strong bulb has produced two sets of leaves, which have each contained a flower stem. This species is usually in full bloom early in April though in this late spring last month was half over before the first flower opened.

T. Kaufmanniana is another very variable species. In its commonest form the inner surface of the petals is white with a yellow centre, which gives the flower a striking resemblance to a Water Lily, while the backs of the outer petals and consequently the unopened bud are often bright red, though they are sometimes merely tinged with a faint greyish blue. Other forms are a creamy or lemon-yellow, becoming a deep yellow at the centre and others again are wholly yellow, as deep as or deeper in colour than any butter. A rare variety, coccinea, has flowers of a brilliant light scarlet, with a yellow centre, while another, called Gaiety, is of a pinker shade of red.

I am inclined to think that all these forms of T. Kaufmanniana breed true from seed, if self-fertilized, though it is necessary to transfer the pollen from the anther of one plant to the stigma of another of the same variety, since individual plants and their offsets tend to be sterile to their own pollen. Increase by offsets seems to vary with the individual seedling. Some increase steadily, forming one or two offsets besides the new flowering bulb each year, while others flower year after year without forming any offsets at all.

If bulbs of T. Kaufmanniana are planted fairly deeply, between six inches and a foot below the surface, they may remain undisturbed for several years, until in fact they begin to suffer from overcrowding when they must be lifted and separated. Small offsets, not strong enough to flower, have a curious and exasperating habit of sending out a stolon, perpendicularly down into the ground, and of forming a new bulb at its extremity. Consequently, it is extremely difficult to dig up a large number of bulbs of T. Kaufmanniana without leaving some bulbs far down in the ground. If the bulbs must be dug up, they should be lifted while the foliage, though withered, is still attached to them. My own practice is to lift the bulbs annually and to store them until November in a warm, dry place. This treatment seems to make them start into growth somewhat later in spring, so that they have a better chance of escaping the fungous disease, called "fire," which attacks and destroys the young leaves, if they are damaged, by cold, rough weather in early spring.

Those who wish to grow these two fine Tulips may not find it easy at first. If I remember rightly, I began many years ago now by buying a threepenny packet of seed of T. Kaufmanniana, which I found offered in the catalogue of Mr. Amos Perry of Enfield. Later I got from Mr. C. G. Van Tubergen of Haarlem three bulbs of the variety coccinea and three of the yellow aurea. Then I found that the red form came true from seed besides increasing slowly by offsets, so that this year there are some fifty bulbs of it in flower, several of them producing a branching stem and two flowers. The yellow forms are, I think, less constant, for there is every shade from the white of the type through cream and lemon-yellow to a very deep yellow. By crossing the red and the yellow varieties a reddish orange is produced, and I have also a very fine hybrid between T. Kaufmanniana and the yellow form of T. Greigii, and also a plant with the purple striped leaves of Greigii and the flower of the yellow form of T. Kaufmanniana.

A few days ago I examined the pots which contain the Tulip seeds that I obtained last year. Each season I vow that I will raise no more Tulips from seeds, for it is a lengthy process, and then some rare plant sets seeds and I cannot resist the temptation. Thus last year I sowed from fifty to sixty pots of Tulip seeds of such rare species as Wilsoniana, Hoogiana, Fosteriana, and of crosses between the two forms of T. praestans, one of which has scarlet, and the other black, filaments to the anthers. Seeds have now germinated in every pot and I attribute this success to the fact that the seeds are not coddled in any way. I always try to sow them in October in rather rough soil, containing a little old manure, some leaf soil and bone meal. It is a mistake to sift the mixture through the finest sieve. An open soil which admits air to the seeds seems much the best.

When the seeds are sown the pots are sunk to the rims in a bed of ashes in an open position and left to the mercy of the weather. In the new year I try to look at the pots every few days and, so soon as I see any sign of germination, I transfer the pot to a cold frame, where it is likewise sunk in ashes. The ashes seem to me to guard against excessive cold in winter and drought in spring. The frames are left open all day long except in very bad weather, until the young plants die down in May. Then the soil should be kept quite dry until October when the top inch or two of soil may be substituted by fresh soil, without disturbing the young bulbs, which always form at a depth of two or three inches below the surface. The frames may be left open until the young leaves appear in the spring and only closed then at night or in very bad weather. Then in the following October the young bulbs may be sifted out of the pots and planted in rows in nursery beds.

The three following years are rather tedious, for the young bulbs must be lifted in June or July and replanted in November and, as in most cases they form "droppers," the lifting process requires some patience. However, if the bulbs are dug up before the withered foliage has entirely disappeared, the process is considerably simplified.

Seeds that are not sown till the new year rarely germinate that season, though a certain percentage will germinate in the following spring. Seeds sown and kept in a warm house will rot without germinating at all and I am inclined to think that the ash bed in the open is the best place for seeds of all hardy plants.

A few months ago I gave seeds of some Californian Irises to a friend with directions for raising them as I raise Tulips. He told me that, as there was plenty of seeds, he was also trying some over bottom heat in a greenhouse. A few days ago he informed me that the seeds which received the cold treatment had germinated freely but that not one had appeared in the warm house! *W. R. Dykes.*

PLANTS NEW OR NOTEWORTHY.

CLIVIA KEWENSIS.

THE article on Clivia kewensis which appeared in *The Gardeners' Chronicle* of April 19 interested me very greatly, as I myself (before the war) crossed Clivia miniata with C. miniata var. citrina and flowered the seedlings. I used C. citrina as the female parent, and I am inclined to agree that this is a distinct species and not merely a variety of C. miniata, as it comes true from seed if selfed. Of course it may be a pure albino (yellow) under Mendel's law.

Some seedlings from the cross are like C. miniata, others like C. citrina, and some show a great improvement upon the latter, as the flowers are larger. I have one seedling of C. citrina that has flowers of a very pale colouring and I hope to get a white variety from it. *William Van de Weyer, Smedmore House, Corfe Castle, Dorset.*

THE BEST BEDDING PINK ROSE

(*Concluded from p.* 237).

How difficult it is to combine in one and the same Rose full perfume with colour brilliance!

If fragrance is not a *sine qua non* then there are several inodorous or feebly-scented pink Hybrid Teas suitable for bedding. That well known and much-grown variety, Caroline Testout, comes into this category. Personally, for a small Rose garden I should exclude it. There is a coarseness about its bloom and growth that fits in more for beds or borders on the grand scale. In addition it is not a good wet weather Rose, balling and rotting with rain. Lady Ashtown is a refined Rose, full, and of an ideal shape. Its chief defect besides want of scent is its liability to mildew. Mrs. E. G. Hill, though strictly a bicolor, may be included among the pinks. It is quite a desirable bedding Rose of vivid colouring and with a certain amount of fragrance. It has no conspicuous fault but may not take kindly to every garden. C. E. Shea and Mme. Segond-Weber are also worthy of mention and among the full perfumed H.T's I had almost forgotten to include the silvery pink Lady Alice Stanley.

The pink Hybrid Perpetuals need concern us little, but there is one variety still holding its own, Mrs. John Laing, which may be styled the late Mr. Bennett's masterpiece. It is a very precious Rose—full and of fine form for a H.P. when well grown, with flowers borne on a stiff but slender stalk, vigorous and of a good bedding habit. Further, it is rich in damask perfume. To some the colour may not appeal in these days of vivid and startling tints; but there is a soothing refinement about its shade which harmonises well with the clear green of its stem and foliage. When used as a cut flower indoors it affords on a hot summer's day both refreshing fragrance and a sense of coolness. Like H P.'s generally, its autumn blooming is poor compared with its summer display, and here in the north-west its flowers rarely come to perfection at that time of year; for unlike the crimson Capt. Hayward, also of Bennett origin, one cannot give it credit for withstanding rain well.

Of the pink, dwarf Polyantha Roses, Orleans (including its desirable sport, Coral Cluster) is about the best, followed closely by Mrs. W. H. Cutbush and Ellen Poulsen with its larger individual flowers Maman Turbat, Peach-pink in colour, might also be included. As with most of this class of Rose scent is lacking. Ellen Poulsen is said to have perfume, but this is not obvious. If these Roses were full of fragrance they would be much more popular for beds, as they are more floriferous and continuous bloomers than H.T's on the whole. As it is, they rather lack interest. *J. P Carlisle.*

TREES AND SHRUBS.

ALNUS FIRMA.

THIS Japanese Alder is one of the most distinct and attractive species for ornamental planting. It is a tree of moderate size, 20 feet to 30 feet or sometimes more in height, forming a graceful specimen on a lawn, or by the waterside. In spring the light green male catkins, 2 inches to 3 inches long, freely borne on the slender branches (Fig. 106) cannot fail to arrest attention, as they are very distinct and effective. The prominently veined leaves are very like those of a Hornbeam.

Two forms are in cultivation; the variety multinervis, said to have been first introduced by Mr. John Gould Veitch, about 1862, is distinguished by short petioles, bi-serrate margins, more numerous veins, up to twenty-four in the largest leaves, and a smaller, pendulous fruit. The subject of the illustration (Fig. 106) is the var. Yasha, which is the more ornamental tree, with longer petioled leaves, fewer nerves, mostly simple teeth and more erect, larger fruits. The first record of this form in cultivation in Britain are trees sent to Kew by Professor Sargent of the Arnold Arboretum. *A. O.*

PRUNUS TRILOBA FL. PL.

IN the great Natural Order Rosaceae, which gives us such an abundance of early, spring-flowering shrubs, the genus Prunus is remarkable for its lavish florescence, and none excels P. triloba fl. pl. in this desirable quality. Its bright-rose, double flowers, produced in marvellous profusion, clothe the whole length of its slender branches with garlands of colour before the leaves develop, and present a most beautiful sight.

For its propagation the Myrobalan Plum is generally used as a stock, and this has such a tendency to throw suckers that the plant frequently becomes greatly weakened from this cause. Plants on their own roots may be obtained by layering, and there is considerable evidence to show that they make more vigorous and shapely shrubs, but it is possible that this may not be so in all soils.

Pruning should be done immediately after flowering, and consists in removing to basal buds those branches which have flowered, and afterwards disbudding, if necessary, in order to leave no more growths than have room for complete development. *W. Auton.*

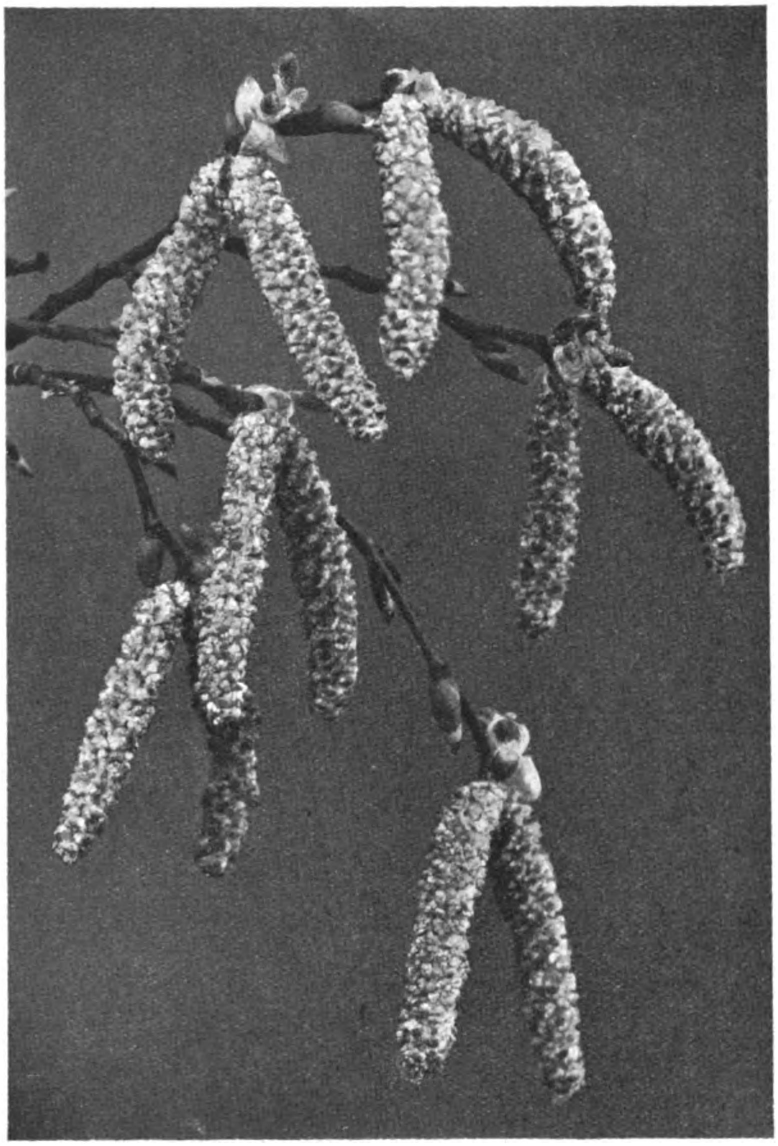

FIG. 106.—CATKINS OF ALNUS FIRMA VAR. YASHA.

FORSYTHIA SUSPENSA.

THIS valuable, hardy, deciduous, flowering shrub is deserving of being more commonly planted in shrubberies and pleasure grounds as it blooms very freely early in the season. When grown in bush form and planted in suitable positions this Forsythia makes a good show before many other flowering shrubs are only just beginning to grow. I have seen very fine plants of it growing on trellisses for covering bare walls, giving, when in bloom, a most pleasing effect. When the roots are planted in good soil this shrub grows rapidly and soon covers a large amount of trellis.

The cultivation of Forsythias in pots for house or conservatory decoration is simple and none need fail in producing plants in the best and most satisfactory condition for that purpose. Although large plants look very well when in flower I thing smaller specimens are preferable, the latter being more serviceable for purposes of decoration. The long, slender shoots covered with yellow flowers are very pleasing when arranged in vases for room decoration. *H. Markham, Wrotham Park Gardens, Barnet.*

STERILITY IN LILIES.

(*Concluded from p.* 209).

The question of the direct influence of climatic or cultural conditions on the setting and production of fruit on Lilies in general should not be confused with their possible influence on the compatible relations of fertilization. Such environmental conditions do greatly influence the production of fruit in every sort of plant. All will readily recognise that plants that are normally fruitful may thus be rendered fruitless irrespective of the processes of fertilization. This is not necessarily any evidence of a change from self-compatibility to self-incompatibility, unless it is shown that with this change there is retained the ability to produce and mature fruit to certain cross-pollinations. The conditions must be seen operating against certain fertilizations rather than against the ability to mature fruit. In incompatibilities, plants that do not set fruit to selfing or to certain crossings do set fruit to certain intra-specific cross-pollinations. In the cultures of Lilies grown at the New York Botanical Garden the only exceptions to this, when healthy plants in considerable number have been studied, are the species L. Hansoni, L candidum, and L. tigrinum. In the last however, certain inter-specific crosses yield fruit in abundance (Fig. 109). So far as is now known, incompatibilities are discriminating fertilizations operating when plants are otherwise fully capable of producing fruit and the environmental conditions favour the maturity of fruit. A pod of L. croceum, produced by using pollen from another plant of the same species, is illustrated in Fig. 110.

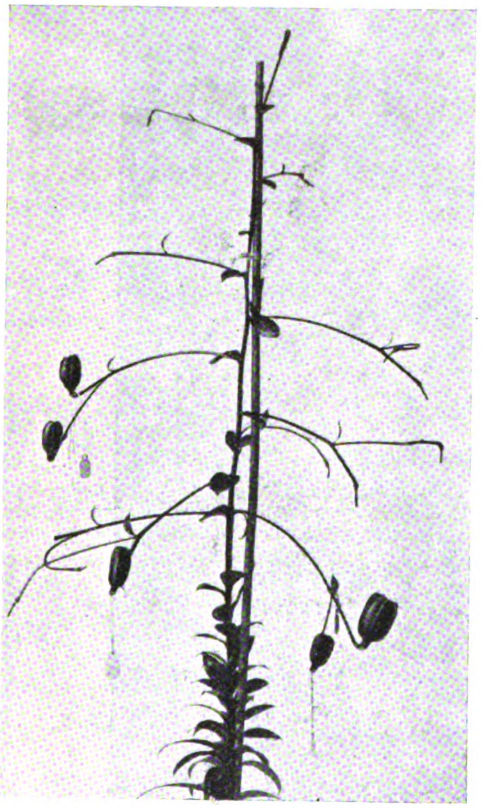

FIG. 107.—LILIUM HENRYI.

This plant is fully self-incompatible, but gives fine pods when cross-pollinated by another plant of the same species.

In considering the possibility that climatic or cultural conditions may determine incompatibilities, it must be recognised that the two extreme and alternative conditions may exist in plants grown under the same conditions and blooming at the same time. Thus, to give but one illustration, a plant of Lilium Henryi is completely self-incompatible (Fig. 107), while another plant by its side is highly self-compatible (Fig. 108). This experience has been obtained over and over again with numerous species of plants, other than of Lilium, during twelve years of study of incompatibilities. With such evidence in mind it is difficult to conceive of climatic or cultural differences as the determining cause of incompatibilities. In this connection it may be noted that self-incompatible and self-compatible plants exist among wild plants of L. superbum and L. canadense obtained from their natural habitats in and about New York City.

It is true that in some species self-incompatibility is a variable character. In the Chinese Cabbage (Brassica pekinensis) the the plants that are self-compatible are most highly self-compatible during the period of mid-bloom, while earlier and later the flowers of the same inflorescence are self-incompatible. Cultural conditions that affect vigour of growth seem to influence the cycle to a certain degree. Thus far, however, there has been no evidence of cyclic changes of incompatibility in any of the Lilies, or of changes in response to differences in culture. Such changes may occur; but the extreme grades of self-compatibility and self-incompatibility exist among plants grown side by side under as nearly identical conditions as is possible.

The situation in Lilium tigrinum is of special interest. With this species the writer has never obtained even the starting of a capsule to any self-pollination or to any pollinations between plants. Is this species fully self-incompatible? Are there no strains within the species that will cross? Are cultivated strains different from the wild plants? The writer would like to know if any plants of Lilium tigrinum produce capsules with viable seed in England or elsewhere when there is no chance for cross-pollination with other species. If there are, he would like to be favoured with some bulbs or bulblets of such plants. The results obtained at the New York Botanical Garden show that the plants of this species set fruit readily to pollen of L. Maximowiczii and L. sutchuenense. It may be predicted that similar results will be obtained in England if the climatic conditions permit the capsules to mature.

The writer also considers it most probable that the species maturing fruit in England include much the same ranges of self- and cross-incompatibilities as do representatives of those same species grown in America, and that the incidental isolation of individuals or of pure clones, either in cultivation or in experimental study, will reveal this condition. *A. T. Stout, Director of the Laboratories, New York Botanical Garden.*

RHODODENDRONS.

(*Continued from p.* 240).

Naturally a plant nurtured for eight years cannot be picked up for a song. The man of limited means to whom a guinea for a plant is a serious outlay, must needs be careful what he buys and study its well-being; he does not want an expensive plant to die on his hands. For ten pounds the nucleus of a valuable little collection of Rhododendrons may be put together by any man who is prepared to wait a few years before his specimens flower well. But not everyone is prepared for such an outlay. Five pounds may be his limit; even so, he may still lay down the foundations of a collection. Remember, the initial cost is everything. Upkeep may be dismissed. If a man keeps one gardener and can spare an hour or two in the garden himself every day, he may grow a hundred Rhododendrons. Meantime he may continue to add to his collection. If he spends, say, £5 a year for five years, he can procure sixty or seventy of the most desirable species and hybrids I shall mention. If, on the other hand, he wants half-a-dozen specimens for his shrubbery—in which case I would recommend hybrids—he need pay no more than a couple of pounds for them.

As to individual cost, it varies, of course, enormously. Some plants may cost him as much as 15s. or a guinea each, or the same species or variety of larger size may be priced at two or three pounds. There are plenty of three-year-olds to be had at 10s. 6d. each, while the smaller species may be picked up at 7s. or 7s. 6d. each. The following may be used as a rough guide. Plants of R. cinnabarinum and of R. Thomsonii, big enough to flower in from three to five years, may be had for about half a guinea each. They are both fine species, forming, when full grown, bushes six or eight feet high. Half a guinea or 7s. 6d. may be taken as a fair average price for medium-sized shrubs which will not flower for a few years. R. Smirnovi, a bush species from Transcaucasia, with good foliage, is quoted at about 5s. 6d. to 7s. 6d. for plants which will flower in a couple of years; while R. Ungernii, a bigger plant from the same region, costs a guinea at flowering age. The delightful 'Triflorum' series which includes thin shrubs or stout bushes of 6 feet and upwards, vary in price from as little as 3s. 6d. or 5s. for R. ambiguum, to half a guinea for such as R. lutescens, R. yunnanense, or R. Augustinii, and a guinea for the lovely Japanese R. Keiskii; the plants flowering in a couple of years if fairly treated. Still smaller species like R. hippophaeoides, R. racemosum, R. cephalanthoides and R. oleifolium, cost half a guinea each at flowering age, but may be had for 3s. 6d. or 5s. as seedlings. These all flower very young.

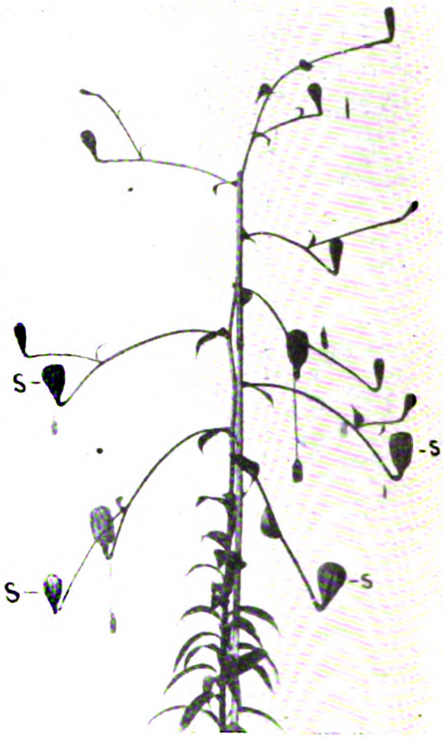

FIG. 108.—LILIUM HENRYI.

This is a highly self-compatible plant, yielding good pods (S) to selfing: pods with square tags are from cross pollination with self-incompatible plants of the species.

At the other end of the scale are the large-leaved trees and big shrubs which, of course, do not flower before they are ten, fifteen or twenty years old. These are sold when hardened, as striplings of four, five or even more years of age, and will not flower for five or ten years. Even so, they may cost anything from fifteen shillings to three guineas apiece. Plants of R. Falconeri,

R. ficto-lacteum and the like can hardly be had for less.

In view of the cost of large plants, especially of the rarer trees, the man endowed with patience and a limited purse is advised to buy seedlings. These cost much less, and there is the great advantage that the plant will get accustomed to its home from youth up. If a few plants only are required to brighten a thicket, or to add early colour to a lawn, then hybrids are to be recommended. These may be of flowering age or thereabouts, and fine plants may be obtained for 3s. 6d., 5s., or 7s. 6d. each. They are mostly medium-sized bushes, flowering early or late, and quite indifferent to the freaks of our climate. For brilliance of colour, for size, persistence, and generosity of bloom, there is nothing to equal them. There are literally hundreds on the market, and they can be obtained in every conceivable Rhododendron colour. I may mention in particular such well-tried favourites as Pink Pearl, Ascot Brilliant, Duchess of Portland, and Broughtoni aureum.

As to where Rhododendrons should be planted in order to obtain the best possible effect, that is a large subject. Undoubtedly some species are most effective in mass; on the other hand, showy forms are best scattered through a thin wood, and the advantage to the plants themselves is obvious. A dark background is a great asset, especially to the scarlet-flowered species—the darker the better; hence the value of Pine woods. The small two- and three-footers, for example R. racemosum and R. hippophaeoides, look well bedded out in solid masses on a lawn; and the big tree forms of the 'Arboreum,' 'Barbatum,' and 'Grande' type, when they *are* trees, look well enough in solitary grandeur in the open against the right kind of background—if they will grow in the open; so, too, do the more spreading bush types like R. ponticum itself. The rock garden is the only place for the little creepy-crawly chaps.

Rhododendrons may be obtained from many of the big nurseries, and a visit to the Royal Horticultural Society's show in Vincent Square any time during the spring, or at Chelsea, will furnish the required information. Several big horticultural firms are taking up these plants nowadays with enthusiasm and some, of course, have long specialised in them. The name of Anthony Waterer is famous in this connection. John Waterer, Sons, and Crisp, of Bagshot, and Fisher, Son, and Sibray, Ltd., of the Handsworth Nursery, Sheffield, are leaders in the field of hybrid Rhododendrons. Amongst those who hold fine collections of the rarer species may be mentioned R. Wallace and Co. of Tunbridge Wells, J. C. White of Bagshot, V. N. Gauntlett, Chiddingfold, Surrey, and G. Reuthe of the Keston Nurseries, Kent. Most of the firms who deal in hardy shrubs offer a good selection of the commoner species and hybrids; and the obvious thing to do is to visit the flower shows and see them. After that, a visit to the nurseries may be recommended, since the heads of the great horticultural firms are most courteous in extending invitations to clients, prospective or retrospective. *F. Kingdon Ward.*

(*To be continued*).

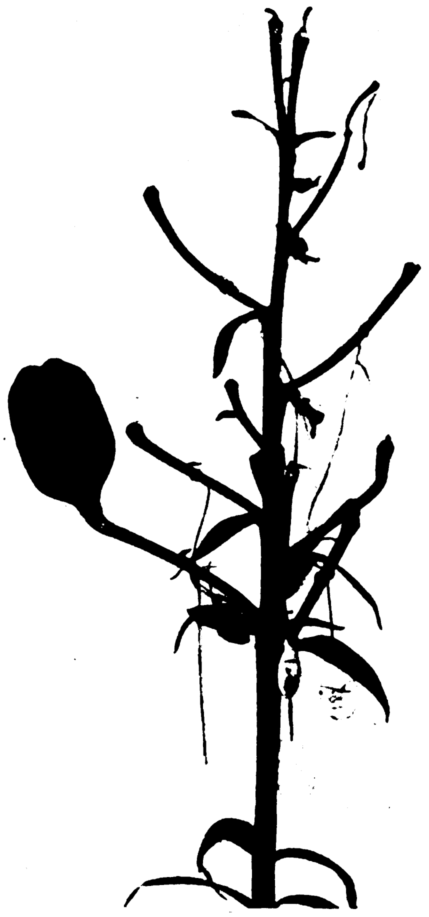

FIG. 110.—LILIUM CROCEUM.

Self-incompatible plant producing a fine pod when pollinated by another plant of the same species (see p. 256).

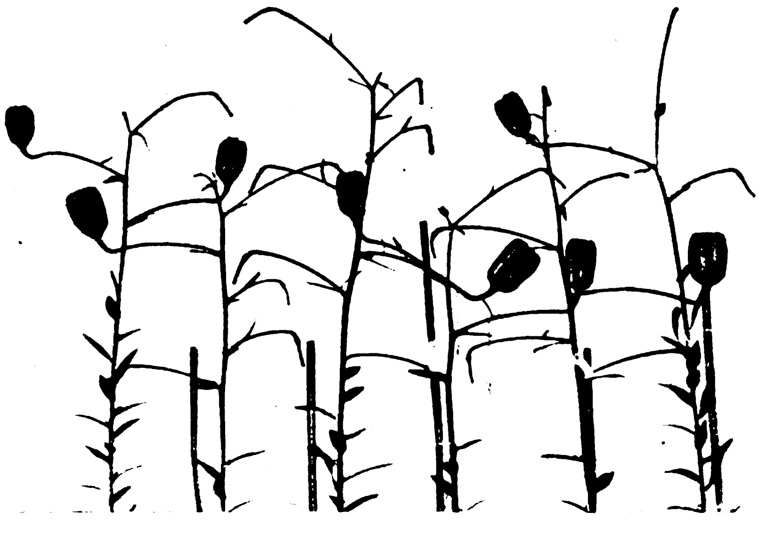

FIG. 109.—LILIUM TIGRINUM.

Pods produced by use of pollen of L. sutchuenense, showing that fully self-incompatible plants will fruit when there is compatible pollination (see p. 256).

THE PLANT COMMONWEALTH AND ITS MODE OF GOVERNMENT.*

(*Continued from p.* 238).

FURTHER insight into the circumstances in which wound-hormones are produced may be obtained by observing the effects which follow upon mechanical injury of delicate plant tissues, as for example the multicellular hairs so often found on leaves and stems. These structures are formed each by the outgrowth and division of a single surface cell. This cell divides to form a row of cells placed end to end; after a few cell divisions growth ceases and the constituent cells of the hair divide no more. If, however, the hairs on the leaf or stem of a Coleus or Zonal Pelargonium be maltreated by cutting or pinching or by less drastic means, as for example, rubbing gently between the fingers or brushing with a hair brush, cell division may in certain circumstances be resumed. If a hair be cut across with a sharp instrument, the cell cut into dies at once, its contents dry up and no division occurs in the remaining intact cells. But if the instrument in removing the top of the hair also bruises the cell beneath the one cut into, the bruised cell enclosed in its wall, though it dies ultimately, has time to prepare its message, and its last will and testament consists in wound hormone, which, passing to the next-of-kin, endows that cell with renewed powers of cell division. The wound-hormone diffusing into a cell, exercises an attraction on the nucleus which moves up in the direction of the injury and, in consequence, nuclear divisions and subsequent divisions occur in the part of the cell near the wall across which the hormone diffuses. In some plants as, for example, the Zonal Pelargonium, the basal cell of the hair appears to resist injury more than the other cells, and hence it may happen that when the stem bearing the hairs is brushed not too harshly, all the cells of a hair are killed except the basal cell. If this sole surviving cell, though damaged, as may be seen by a puckering of its wall, has not been mortally injured, it produces wound hormone, and thereby stimulates itself to cell division.

It may be, and I think it will be, that these discoveries are destined to throw light on many obscure phenomena in plants. Thus it has long been known that by wounding a plant a turmoil may be set up which spreads from the seat of injury to the uttermost parts of the plant. When a branch of a tree is lopped there are re-percussions in the roots buried deep underground. The turmoil is visible under the microscope. In normal circumstances the protoplasm of a plant cell presents no sign of movement; but in certain circumstances an incessant restlessness very marvellous to witness overcomes it. All its granular mass except the layer next the cell wall begins and continues long to circulate around the cell or else to stream up and down along certain lines. When tissues are injured this streaming or circulation of protoplasm begins in cells near the wound, infects the cells next to them and so on until, like bees disturbed in a hive, the myriad protoplasts of the plant are all in active movement. In the light of the experiments with wound hormones it would seem probable that the propagation of the disturbance which leads to streaming is due to some chemical message which passes by diffusion from cell to cell. Again, it would seem possible to ascribe the remarkable behaviour of the fertilized egg cell to the influence of a wound hormone. As is well-known the egg cell of a plant or animal remains quiescent until it is penetrated by the male reproductive cell. Soon after this event the fertilized cell begins actively to divide and continues growth and division until the embryo has been formed. Ingenious experimentors have shown that egg cells of the lower animals and of some plants may be caused to undergo division and to produce embryos even in the absence of fertilization. Thus the unfertilized egg of a frog pricked by a needle has been caused to undergo division and development and to give rise to fatherless tadpoles. Hence there would seem to be little doubt but that in normal fertilization the abrupt entrance into the egg cell of the male reproductive cell leads to the production of a wound hormone which acts specifically in provoking cell-division. It might be objected that such an hypothesis pre-supposes an almost incredible delicacy of protoplasmic organisation, but the objection has no weight with the plant physiologist who knows from long experience that disturbances of protoplasm, often so slight as to escape our own powers of perception, may suffice to produce marked and far reaching effects in plants. The exposure of one side of the tip of the seedling leaf of Oat or other grass to direct sunlight for periods of so brief a time as 1/2000th of a second suffices to interrupt the uniformity of its upright growth and make it bow to the sun.

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* Discourse delivered at the Royal Institution on Friday, March 21, 1924, by Sir Frederick Keeble F.R.S.

The tendril of the Passion Flower has a receptiveness so acute that the hanging upon it of a thread weighing no more than 1/4000 of a millegram suffices to deflect the tendril from its course of growth. It curves in the direction of an incubus, the weight of which would have to be increased tenfold before we, if it were placed upon the skin, could be made aware of it by our sense of touch. The human eye is apt to distinguish small differences of light intensity. When we are young our eyes can perceive the difference between a ninety-nine and a hundred candle power lamp. As we grow old acuteness of perception fails and we are lucky if we can tell the difference between lights of one hundred and of ninety-six candle powers. A leaf can "tell the difference" between one hundred and 98.7 candle power, so that its sensitiveness, as expressed by responsive movement, is equal to that of a fairly young eye. The trained eye is a wonderful instrument for perceiving whether or no a line be truly vertical, but I doubt whether its power is greater than that of the root of any plant. More than once a delicate experiment in plant behaviour has come to grief because the experimentor failed to notice that his table was not absolutely horizontal and in consequence his plants not vertical. The plants themselves took heed of the displacement and set to work to rectify it to the undoing of the experiment. To describe in any detail the different kinds of receptor or receiving apparatus whereby an external stimulus—of light, gravity, etc., is registered by the plant, lies beyond the purpose of this discourse. It is, however, essential to that purpose to point out that the region of reception of the stimulus is often separated by some distance from the region of reaction. Cut or burn the root of a Sensitive plant and presently the leaves begin to move. First those nearest to the base of the stem bend down hingewise on the leaf cushion (pulvinus) and their leaflets fold together, then in succession those higher up the stem undergo a like series of changes until all have soon reacted to the shock. Place a root on its side, and its growing region an inch or so behind the tip, elongating more on the upper than on the lower side, initiates a curvature which continues until the tip points again vertically downward. But if, as Darwin showed, the tip be cut off before the root is placed in a horizontal position no curvature occurs until a new root tip has been regenerated. In the intervening days the root continues to grow horizontally.

(*To be continued.*)

VEGETABLE GARDEN.

ENDIVE
(CICHORIUM ENDIVIA).

WHATEVER differences of opinion exists respecting the origin of Chicory none apparently exists respecting its congener, the Endive, which appears to have come to northern Europe from the East Indies by way of Egypt, Greece, and Rome about 1548. Many persons have from a casual inspection, supposed that it is just a refined form of the common Chicory, but, while there is a family likeness in the two plants, there are great differences botanical and otherwise.

For example, while the Chicory is a perennial and hardy, the Endive is an annual, or at most a biennial and is quite sensitive to cold. The leaves and stems are quite smooth and its natural bitterness is not so pronounced.

The medicinal value of the plant, used either as a boiled vegetable or salad, ranks very high. In general its use resembles that of Chicory, but it is not put to any ignoble use. An exception to this is to be found in Lawson's *Manual* where we read, "A small quantity might be found of advantage by the cottager to plant after early Potatos have been dug to afford fattening and wholesome food for pigs." As the Endive with its sensitive and delicate constitution is looked up to as the aristocrat of the Cichorium family, this statement as to its value is, to say the least, somewhat derogatory.

It is remarkable that the Brussels (Witloof) Chicory is known as Endive in the Parisian markets of to-day.

Although there are great numbers of different varieties of Endive, they may be roughly divided into two classes, the Broad-leaved Batavian and the Curled.

The former is supposed by some botanists to be the parent variety. It is the only variety figured by Dodenaeus in his *Six Pemptedos* written about the time of the introduction of the plant into Northern Europe. An illustration shows an erect growing plant with rather short, entire leaves, rounded at the point similar to the common variety grown to-day. The other class is the Curled The date of its first appearance I have not been able to fix with any degree of certainty, but Miller quotes it from the the *Pinax* of Caspar Bauhin, 1671, as Cichorium Endivia crispa, Curled Endive, and states: "The broad-leaved and the curled Endive are supposed to be only varieties from each other which have accidently been produced by culture, but, from having cultivated both in the garden nearly forty years, I could never find that they ever altered otherwise than the curled sorts becoming more or less curled. The broad-leaved sort has shorter, rounded and entire leaves, is much more bitter, and is consequently much less grown than the curled."

The improvements and developments that have been made in both classes since their introduction are very great. For these we are indebted almost entirely to the skill of the French horticulturists. The long list of varieties figured and described in *The Vegetable Garden* constitute a record of which the raisers may well be proud. This long list includes some of the varieties best adapted for culture in Britain as follows:—

Curled French Dwarf Moss for frames. Rouen or Stag's Horn, greyish green finely cut leaves and thick, white midribs; Ruffec, a very large, closely curled form of the Moss Curled type, very hardy and Ever White Curled, which appears to have been naturally blanched. Of the Broad-leaved class, nothing is better than the Improved Round Leaved, which makes a splendid winter salad.

The cultivation of Endive is by no means difficult; any good garden soil suits it; and if the soil is kept moist, not sodden, and the seeds are sown at the proper season—never earlier in the open air than the end of May, and in succession to September, all will be well. Blanching is a very simple matter; the broad-leaved plants should be carefully tied together as is done in the case of some Cos Lettuces, and covered as required with straw mats, such as are used by the market gardeners in districts around Paris. Only the leaves are eaten, and these should be served nicely boiled or as a raw salad. *S. B. Dicks.*

SEAKALE.

THE Seakale, Crambe maritima, is, as its name implies, a native of the sea coast and has been used as food by the inhabitants of the maritime regions of this country from time immemorial. There is evidence that its cultivation became general in the southern counties about the middle of the eighteenth century, and it is recorded that it was first offered for sale in London in 1767. Probably no other vegetable has been cultivated over such a long period of time with so little change in form. It is a singular fact that although so widely grown in this country, it is very little cultivated in France and other continental countries where the demand for light vegetables is greater than it is in Great Britain.

Seakale is one of the best aids the gardener has to the winter supply of vegetables, as it may be had in season from December to May, where accommodation exists for growing a sufficient stock to maintain supplies during that period. In a season such as this, when many winter vegetables are scarce and spring vegetables show little inclination to respond to "summer time," Seakale is especially valuable.

The first point in its cultivation is to choose an open, sunny position, and land which has been trenched and heavily manured for a previous crop. Plants may easily be raised from seeds, but the better method is to propagate by means of thongs about five or six inches long, these producing much stronger plants in a year with much less labour than seedlings. Those raised from seeds will need weeding until late in the season, whereas growth from thongs soon covers the ground so effectively that no weeds can live. The thongs should be planted firmly in rows made eighteen inches apart, allowing a distance of one foot from plant to plant, taking care that they are well covered. Under good cultivation they will make fine crowns in one season and be ready to lift for forcing from November onwards.

The forcing of the crowns is a very simple matter and consists in introducing them to gentle heat in batches as required. A Mushroom house is very convenient for the purpose, but if this is not available a closed, cupboard-like structure under the stage of a plant-house answers admirably. Overheating should be carefully guarded against as Seakale resents excessive fire heat and yields larger and much better flavoured produce when grown in a temperature of 55° to 60° than under warmer conditions.

Where houses or frames are not available to carry on the forcing operations, permanent beds may be planted out-of-doors, arranging the beds and planting the crowns at convenient distances in order that they may be covered by rough wooden structures or Seakale pots and surrounded by fermenting material for early forcing. For later work fermenting material is not necessary, and it will suffice to simply cover the crowns with pots, while the latest supplies may be obtained by covering the crowns with clean sand or ashes. *W. Auton.*

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Young Lads and Horticulture.—In my experience of gardening, I have served under six head gardeners. They all had a very distinct system of working, which to no small degree made affairs complicated for new hands under them. Five of them were very strict, yet fair to me, and greatly assisted me with knowledge along the line of success. The other head gardener is hard to describe. I only served under him for a fortnight, long enough to know him. He has had five foremen in five months. Engaged two more and lost them since I left. Why is it? Nobody can say it was lack of experience, because those same men hold situations as foremen in good establishments, including myself. Head gardeners can be strict, without bullying. I blame men themselves for putting up with it. *C. Smith, Foreman Gardener.*

——To accurately forecast for say 15 years a lad's prospect on entering a gardening career, would be a difficult matter, as we have ample proof that social conditions are the ruling factors so far as private gardening to any great extent is concerned. Considering the progress made in horticulture since the termination of the war there is every cause to be optimistic. To those who doubt my contention I would advise them to visit the forthcoming Chelsea Show, where they will find the large tents packed with enthusiasts. The same is true of the fortnightly meetings of the R.H.S. at Vincent Square, and we learn that a larger hall is to be erected. I agree that the trade predominates at all these shows, and that to my mind is not discouraging, although one would like to see many more amateur exhibits. The foremost thing for a lad starting in gardening is to have his mind concentrated on his work, and a determination to fill a good post as head gardener in the future. Such lads are not numerous. A capable journeyman often fails to succeed as a foreman. A knowledge of management is therefore a great asset, which young gardeners should not overlook. In conclusion I would suggest a remedy I have long cherished to reduce the number of would-be head gardeners, encourage young men to take up the profession, and those that are in it to continue. I refer to housing accommodation for foremen wherever possible. I have every reason to believe that many first-class foremen have left the profession, at an age when the bothy does not appeal to them, and in failing to secure a post as head. Such men are very valuable to the head gardeners, and a prolonged period as foreman would better fit him for the premier post which he hopes one day to obtain. *T. Baines.*

Old Book Buying.—The announcement in last week's issue, of the sale of the late Mr. R. P. Brotherston's books, is only another reminder, of many, that the dispersal of old horticultural libraries has been going on now for some years past. Librarians in charge of horticultural libraries and collectors must look out for their chances, on such occasions, to secure rarities that they require to add to their collections. If they fail to do so the opportunities will be fewer in the future and prices will still soar upwards. In an evening contemporary there was recently an account of a short interview with the well-known American book dealer and collector who comes over to England and purchases all the old and valuable works he can get hold of. Dr. Rosenbach justifies the acquisition of bibliographical rarities on the ground that institutions of learning are springing up rapidly in the Western States and therefore new libraries must necessarily be formed. The reader can gain some idea of this great American book buyer's operations, when it is said that he thinks nothing of spending £10,000 in a single day on a few rare editions and that he has stated his visit to Europe this year may cost him between £300,000 and £400,000. Fortunately for us on this side of the Atlantic who are still on the look-out for gardening books of great rarity and value, Dr. Rosenbach does not seem yet to have turned his attention to that department of literature. It may be that presently American horticultural societies may put him on the track of old works that they may want. In the meantime we must protect ourselves by acquiring what we want as the opportunities arise. And let us not forget what he says, which is equally applicable in our line, "The prices of rare books are still reasonable in my estimation . . . What I pay now will be considered cheap in ten years' time." And so say I. *C. H. P.*

Tradescantia fulminensis. — The note on Tradescantia fulminensis vittata (p. 178) is interesting. This plant is used in these gardens for edging groups of other subjects in the winter garden. Its propagation is simple; five or six cuttings inserted in a 60-sized pot filled with a light, sandy soil quickly form roots and in a few weeks are ready for use. Successive batches may be grown to replace unsightly specimens. A plant which was very popular once and one which is also easy to cultivate is Pilea muscosa (syn. microphylla). Cuttings of this plant root freely in a peaty compost and when potted singly soon form bushy, compact specimens, which are most useful for a variety of decorative purposes. Selaginella Kraussiana is another subject which is not to be too hastily condemned in these days. There are several varieties, of which Brownii is a compact grower. Selaginella's when grown in pots should be provided with ample drainage. They revel in moisture, but will not flourish in a stagnant soil. *Colin Ruse, The Hyde Gardens, near Luton.*

Ipomaea rubro-coerulea. — This Ipomaea, as stated by Dr. Robertson Proschowsky, in vol. lxxi. p. 135, has flowers of the purest sky-blue, but it is not sufficiently hardy for general outdoor cultivation in this country. For pot culture it should be grown in a mixture of equal parts fibrous loam, leaf-mould, and manure from a spent Mushroom-bed with sand to render it porous. As a conservatory subject there are few plants that surpass it in colour. Ipomaea rubro-coerulea associates pleasingly with the light leaves and yellow blossom flowers of the Canary Creeper, when the two are permitted to intertwine on trellises. *J. W. Graham.*

Leptospermums.—The nomenclature of the Leptospermums in cultivation is, as Mr. Johnson remarks (p. 217), a trifle confused. Particularly is this so with L. scoparium and its varieties. As might be expected from its range of distribution, L. scoparium, Forst., is variable from seed even in its native habitat, and it was as wildings that these well-known varieties Nicholli, Turrill, and Chapmanii, Dorrien-Smith, first occurred. Leptospermum bullatum appears to be another variety of this species, and not, as Mr. Johnson supposes, a synonym. Batley, in the *Standard Cyclopedia of Horticulture*, gives L. bullatum, Hort., as a synonym for L. scoparium, Forst., var. bullatum, Rehd., and the references to illustrations of the plant includes *Gard. Chron.*, iii., 51, 100, and a woodcut in *The Journal of Horticulture*, iii., 30, 435. The illustration referred to in the *Gardeners' Chronicle* shows a large bush in flower in a Devonshire garden. L. scoparium var. bullatum is distinguished from the type by having larger but narrow leaves, and larger white flowers. *Robert H. Jeffers.*

SOCIETIES.

MIDLAND DAFFODIL.

The annual exibition of the Midland Daffodil Society was held in the Botanical Gardens, Edgbaston, Birmingham, on the 24th and 25th ult. The show was regarded as one of the best within recent years, as the warm weather of the preceding week-end had enabled representative collections to be shown. The Floral Committee sat in the afternoon when no fewer than twenty-five varieties were considered. One variety received the high distinction of a F.C.C., and nine others were granted Awards of Merit. In the evening of the first day of the show an informal dinner was held by the members of the society at the Grand Hotel.

First Class Certificate.

Tenedos. — This magnificent variety has previously received an Award of Merit from this society last year; it also had the same honour conferred by the R.H.S. on the 14th ult. at the London Daffodil Show. Descriptions will be found on p. 251, 1923, and p. 229. Shown by Mr. Guy H. Wilson, Broughshane, and The Donard Nursery Co., Newcastle, Co. Down.

Awards of Merit.

Crucible.—A fine bi-coloured Barrii with a large bright and fringed cup. The perianth segments are of good texture and of excellent form. Shown by Dr. N. Y. Lower, Presteign.

Cicely.—This variety was shown as a market and show flower. It is a medium-sized Leedsii variety with white perianth and faintly cream large cup. Shown by Mr. A. M. Wilson, Presteign.

Golden Harvest. — The largest trumpet Daffodil we have yet seen. The flowers are of a golden-yellow colour, and the diameter of the bloom is fully six inches, while the fringed trumpet measures about four inches across. It is a very vigorous variety and forces as early as Golden Spur. On January 20th last year it received a F.C.C. at Haarlem. Shown by Messrs Warnaar and Co., Sassenheim, Holland.

Irene Copeland.—A large, elegant, double variety, very full and of excellent form. The colours of the segments are cream and light apricot. Shown by Mr. W. F. M. Copeland, Southampton.

Magician.—The variety is classed as a bicoloured Barrii and was raised by Mr. J. C. Williams. The segments are white and of refined texture and the flat cup is bright orange-red.

Master Robert.—A magnificent large golden yellow trumpet variety of graceful form and splendid texture. The trumpet is well proportioned and the flower is carried on a long stiff stem. These two varieties were

White Nile.—This variety was raised by the shown by Mr. L. R. Richardson, Waterford. the Brodie of Brodie and is a giant Leedsii of refined quality. The colour is purest white with flat overlapping perianth segments. The corona is neatly fringed and of perfect shape. Shown by Mr. C. H. Chapman, Rye.

Beersheba.—A superb flower and probably the finest white trumpet variety in existence. It is a seedling from White Knight and was raised by the Rev. G. H. Engleheart. The bloom measures about four inches across and the trumpet about two inches long and one and a half inch wide. The clear white flower is beautifully proportioned and borne on long stems.

Moira O'Neill—Another of the Rev. G. H. Engleheart's seedlings: the perianth is white and the graceful trumpet of clear, pale primrose colour. The flower measures fully four inches across and is of smooth, waxy texture. This and the previous variety were shown by Mr. Guy L. Wilson, Broughshane.

Open Classes.

The principal class was for a collection of thirty six varieties, three blooms of each, representing as far as possible the different divisions, and of the four competitors Mr. J. L. Richardson, Waterford, was awarded the first prize. His collection was of outstanding merit, and included the varieties Caedmon (poeticus), H. C. Bowles, a good white trumpet; Firetail, with a brilliant red eye: Buttercup, a jonquil hybrid; Joan of Arc, Mrs. Wakefield Christie Miller, a large bicolor trumpet; Ringdove, Elfrida Pearson, Red Beacon, White Knight, Ruby, Mathew Arnold, Corregio, and Silver Salver. The Donard Nursery Co., Newcastle, Co. Down, followed a close second with beautiful specimens of Dragoon, Selinna Malone, Irish Pearl, Thetis, Festive, a large incomparabilis variety; Stateliness, a giant Leedsii; Gold King, a large yellow trumpet; and Harvest Moon, a primrose-yellow flower. The third prize went to Mr. F. H. Chapman, Rye, who showed seedlings of high quality, and a magnificent vases of Optimist, a fine yellow flower; Yukon, yellow trumpet; Millenium, a fine yellow trumpet; and White Sentinel, a very refined Giant Leedsii.

In the class for twelve varieties of white, yellow, and bicolor trumpet-flowers, three stems of each, competition was very keen and Mr. Guy L. Wilson, Broughshane, led with a beautiful collection, every flower being in perfect condition. Among the white varieties were Beersheba, White Emperor, and White Conqueror, while yellow blooms were represented by Golden Flag, Bulwark, and King of the North; Moira O'Neill is a fine pale bicolor of large size. Numbers of unnamed seedlings of high quality were included. The second prize was gained by Dr. N. Y. Lower, Presteign, who mainly depended on unnamed seedlings; included in the collection were perfect flowers of Serapis, yellow; Clarion, yellow; White Knight, and Conqueror, white. Mr. J. L. Richardson was placed third. There were five competitors in this class.

For six varieties of yellow trumpet flowers, three stems of each, the premier prize was awarded to The Donard Nursery Co., who showed Clarion, Gorgeous, and four beautiful seedlings. Mr. F. H. Chapman was a close second with perfect flowers of Optimist, Cinema, Rampant and Gukon. Mr. J. L. Richardson was again third. In a similar class for white trumpet varieties, Mr. Guy L. Wilson led with White Conqueror, Driven Snow, Beersheba, and three seedlings; Mr F. H. Chapman showed Milo, Driven Snow, Borderland, and Gaza in his collection and received the second prize. The Donard Nursery Co. was awarded third place. The last named firm took chief honours in the class for six bicolor varieties and showed Selinna Malone, Vestal Virgin, Lady Primrose, together with three perfect seedlings. Mr. G. L. Wilson was placed second with the two first-named varieties, Moira O'Neill, and unnamed flowers, while Mr. L. R. Richardson followed a close third. Dr. N. Y. Lower had a wonderful half dozen vases in the class for six yellow Incomparabilis varieties, and showed highly coloured blooms. With three unnamed seedlings he also showed Shahazaka, Mir Kara, and Amir. The Donard Nursery Co. was second with good blooms of Farthingale, Dingo, Leonotes, and Croesus, and Mr. L. R. Richardson was placed third. In a similar class for white-perianthed varieties, Mr. L. R. Richardson took the first place with fine specimens of Lady Moore, Centurion, Whitewell, Loch Fyne, and Bernardino.

The Donard Nursery Co. was second with flowers of Great Warley, Lady Moore, Dragoon, and Festive. The third prize went to the Rev. T. Buncombe, Black Torrington. Excellent vases of the varieties Crucible, Firetail, and Golconda, together with three charming seedlings gained the first prize for Dr. N. Y. Lower, in the class for six bicolor Barrii varieties. Mr. L. R. Richardson was second, and included the varieties Red Beacon, Firetail, Challenger, and Dosoris. The third prize winner was the Rev. T. Buncombe.

Of the six competitors in the class for six large-cupped Leedsii varieties, Mr. L. R. Richardson was first with a superb collection, including the varieties White Nile, Elfreda Pearson, Irish Pearl, Lord Kitchener, and Empire. Dr. N. Y. Lower was second with Tenedos and a number of beautiful seedlings, while the third place was filled by Mr. F. H. Chapman. The Rev. T. Buncombe was the only competitor in the class for six small-cupped Leedsii varieties and was awarded the second prize with good flowers of Hypatia, Evangeline, White Frank, and Candidata. For six Poeticus varieties Mr. L. R. Richardson was first with perfectly developed blooms of Mathew Arnold, Acme, Oracle, Caedmon and two seedlings.

Single Bloom Classes.

The single bloom classes attracted keen competition and the flowers throughout were of a high standard.

For a yellow trumpet variety, Dr. N. Y. Lower was first with a magnificent unnamed flower; second prize was won by Mr. F. H. Chapman, with Regal, and third prize by Messrs. Warnaar and Co., Sassenheim, Holland, with Golden Harvest. In the class for a white trumpet flower Mr. L. R. Richardson was first with the variety Mrs. E. H. Krelage; Mr. W. F. M. Copeland, second with Lady Wolseley, and Dr. N. Y Lower third with Georgie Clogstoun. For a bicolor trumpet variety Mr. L. R. Richardson showed a fine seedling for which he was placed first. The second prize went to Miss I. Worsley, Bristol, with Ernest, and the third prize to Dr. N. Y. Lower with a seedling. Messrs. Warnaar and Co. were first in the class for a yellow Incomparabilis variety with Helios, a variety not unlike Fortune. Mr. W. F. M. Copeland and The Donard Nursery Co. both showed unnamed flowers and were placed second and third respectively. The variety Nissa, with a bright Primrose-yellow cup, gained the first prize for Mr. F. H. Chapman in the class for a bicolored Incomparabilis variety. Dr. N. Y. Lower was second with Beauty of Radnor, and Mr. E. J. England, Exeter, third, with Bernardino.

For a yellow Barrii variety the Rev. T. Buncombe was first with fine specimens of Devonia; Mr. F. H. Chapman gained second place with Robin Redbreast, and Miss I. Worsley, third with a pretty seedling. In the class for a white Barrii Dr. N. Y. Lower was again first with Crucible, a large flower with a bright, neatly fringed cup: Mr. L. R. Richardson was second with Firetail, and Mr. E. J. England, third with Dosoris. The variety White Nile secured for Mr. L. R. Richardson the first place in the class for a large-cupped, Leedsii variety; The Donard Nursery Co. were second with a fine seedling, and Mr. A. H. Bassano, Old Hill, third, with Killarney. For a small-cupped Leedsii variety Capt. H. G. Hawker, Ermington, was first with a perfect bloom of Geheimness; Mr. L. R. Richardson was second with Silver Salver, and Mr. E. J. England, third, with St. Olaf.

Mr. E. H. C. Thurston, Chandler's Ford, was first in the class for a Triandrus hybrid and showed a well formed seedling; Mr. W. F. M. Copeland was second with a good seedling, and Mr. E. J. England, third, with Castor.

In the class for a Cyclamineus hybrid, Mr. F. H. Chapman was the only prize winner, and was placed first with a beautiful clear yellow unnamed flower. For a Jonquilla hybrid Mr. L. R. Richardson took chief honours with Golden Mohen, a twin-flowered, deep yellow variety. The second prize went to The Donard Nursery Co., with Buttercup, and the third to Mr. E. H. C. Thurston, with a good seedling.

Of the four competitors in the class for a Tazetta hybrid Dr. N. Y. Lower was the only prize winner, and showed the variety Gloriosa; the same exhibitor was also first in the class for a Poeticus variety with a seedling of excellent form and texture. Mr. W. F. M Copeland was first in the class for a double variety with Mary Copeland, a shapely flower with pale cream orange-red petals.

Seedling Classes.

The Bourne Challenge Cup for twelve varieties, one stem of each, raised by the exhibitor, was awarded to Dr. N. Y. Lower, who showed a highly creditable collection, consisting, for the main part, of unnamed seedlings. Of named varieties were Georgie Clogstoun, white trumpet; Beauty of Radnor, bicolored Incomparabilis; May Fisher, Leedsii, and Rewa (Fig 103, see p. 249), a magnificent bicolored Incomparabilis. The last-named flower was awarded the Leamington Cup as being the best flower in the show. It is a bloom of perfect symmetry, measuring about four inches across. The segments are white, well rounded, overlapping, and of smooth texture. The cup is neatly fringed, of Apricot and yellow colours and measures about one inch in diameter. Mr. L. R. Richardson also had a very fine display of flowers for which he received the second prize. Of named varieties were Royal Ruby, Lady Millicent Tazlour, and Helen O'Hara, a large white trumpet variety. Mr. F. H. Chapman was third with a noteworthy selection. This class attracted six competitors.

In the class for three varieties, not yet in commerce and raised by the exhibitor, The Donard Nursery Co. was first with a charming half-dozen unnamed flowers; Mr. E. J. England was second, and Miss R. Pope, King's Norton, was third.

In a similar class for three varieties, open only to those who have never previously won a first prize for a collection of seedlings, Mr. E. J. England was the premier prize winner, with three good flowers, and Mr. A. H. Bassano was second.

The Cartwright Challenge Cup for twelve varieties, not fewer than four divisions to be represented, was won by Dr. N. Y. Lower who again had an outstanding collection of flowers, including the varieties Mir Kara, George Clogstoun, Orange Glow, a large Incomparabilis bloom with yellow perianth and frilled orange red cup; Beauty of Radnor, Crucible, a fine bicolored Barrii, May Fisher, and Clarion. The Donard Nursery Co. was placed second, and Mr. L. N. Richardson third.

In the class for six varieties, any division but which have not been in commerce more than four years, the Rev. T. Buncombe was the only exhibitor and was awarded second prize with Brightling, Snow White, and Beau Brummell.

The Walter Ware Challenge Cup offered for nine Triandrus seedlings, one stem of each, was awarded to Mr. E. J. England who showed an excellent collection of unnamed flowers. The second prize was won by Mr. W. F. M. Copeland, and the third by Mr. E. H. C. Thurston.

Mr. Guy L. Wilson secured the White Daffodil Trophy for six single blooms of white trumpet varieties, and exhibited such highly meritorious flowers as White Emperor, White Wax, Beersheba, White Knight, and Kantara, the last-named of outstanding quality. The Donard Nursery Co. was placed second and Mr L. R. Richardson third.

Amateur Classes.

For a collection of twenty-four distinct varieties, three stems of each, Mr. J. S. Arkwright, Presteign, led with good vases of Red Snowden, Felspar, Giraffe, Kingsley, Dragoon, Irish Pearl, and Seville. Mr. E. V. Butler, Tewkesbury, was second with a representative collection, and Mr. H. R. Darlington, Potters Bar, was third.

The last-named competitor was first in the class for six trumpet varieties, and was also first prize-winner in the classes for six Incomparabilis varieties; six Leedsii varieties; and three Tazetta hybrids. Mr. E. V. Butler took chief honours in the classes for six Barrii varieties and three Poeticus varieties. Mr. E. J. England was awarded first prize for six varieties, any division, and exhibited some excellent flowers.

Decorative Classes.

Mrs. E. V. Butler, Tewkesbury, took leading honours in the class for a bowl of Daffodils and Narcissi arranged with foliage. She employed a Poeticus variety with a pretty combination of coloured leaves and shoots. Dr. N. Y. Lower was second and Mrs. W. F. Mitchell, Leek Wootton, third.

In the class for a vase of hardy spring flowers, Mrs. W. F. M. Copeland was first with an effective arrangement of Iris Wedgewood and Gypsophila. Mr. E. J. England came second and showed the brilliant scarlet blooms of Ranunculus libanoticus, while Miss R. Pope, who displayed Ribes sanguineum with Muscari, was third.

Trade Groups.

The Donard Nursery Co., Newcastle, Co. Down, arranged a large and magnificent collection of flowers. Of large yellow trumpet varieties there were fine vases of King Alfred, Gog, Magog, and Golden King, while excellent white and bicolor varieties included Quest, White Emperor, Selina Malone, Loyalty, and Weardale Perfection. Incomparabilis and Barrii types were represented by Dragoon, with a brilliant red cup; Fortune, a large bold flower with yellow segments and bright orange cup; Leontes, a self bright yellow; Croesus, Festive, Carnival and Firetail. Large numbers of unnamed seedlings of high quality were also staged by this firm (Gold Medal). Messrs. Cartwright and Goodwin, Kidderminster, showed a small group of flowers of which Lemon Star, The Fawn, Red Beacon, Dosoris, and Macebearer were a selection (Silver Medal).

Messrs. Barr and Sons were responsible for a highly creditable exhibit containing many beautiful seedlings. Of named varieties there were perfect vases of Sarchedon, a large-flowered Poeticus variety; Haid, Snow King, a large, well-balanced Poeticus; King Pirate, with bright red cup; Antiope, a large bicolor trumpet; and Lady Brilliant, a highly-coloured Barrii variety (Gold Medal). A group of high quality blooms was staged by Mr. L. R. Richardson, Waterford, who, besides exhibiting many fine seedlings, staged Master Robert, a large yellow trumpet; Firetail, Kingdom, a good Giant Leedsii, Lady Primrose, Helen O'Hara, a beautiful white Trumpet variety, Firetail, Fortune, Horace, Whitewell, and H. C. Bowles (Silver Gilt Medal).

Mr. Guy L. Wilson exhibited a good selection of flowers of which Beersheba, a refined bloom, White Knight, Irish Pearl, White Conqueror, Golden Flag, and the magnificent Tenedos were a selection (Silver Medal). Messrs. Bath, Ltd., Wisbech, showed a number of excellent seedlings representing the various sections (Silver Medal), and Mr. W. F. M. Copeland, Southampton, staged a selection of blooms including the double Irene Copeland, which gained an Award of Merit (Silver Medal).

Messrs. Hewitt and Co., Birmingham, arranged a small group of good, clean flowers including Tenedos, Sunrise, Southern Gem, Golden King, and King Alfred (Bronze Medal). Messrs. Bakers', Wolverhampton, had a neat group of Violas, Alpines, and flowering shrubs (Silver Medal).

ROYAL HORTICULTURAL.

April 29 and 30.—An altogether splendid show was enjoyed by the large number of Fellows and others who visited the Royal Horticultural Hall, Vincent Square, Westminster, on these dates.

Interesting plants, bright colour and fragrance, were all present. Daffodils commanded attention by reason of their numbers and beauty. Orchids were also well shown. Flowering trees and shrubs were in great form, and alpine plants were uncommonly well represented. Auriculas and Primulas were other subjects of note, and there were numerous interesting novelties.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Sir Fred W. Moore, Sir John Rutherford, Messrs. Jas. O'Brien, R. Brooman White, H. T. Pitt, Henry H. Smith, H. G. Alexander, Fred. K. Sander, S. W. Flory, John C. Cowan, T. Armstrong, E. R. Ashton, Charles H. Curtis, Richard G. Thwaites, J. E. Shill, C. J. Lucas, and G. Wilson Potter.

First Class Certificates.

Odontioda Ganesa, Gerrish's variety (*Oda. Brewii × Odm. President Poincare*), from R. Gerrish, Esq., Mulford Manor, Salisbury (gr. Mr. W. Sorrell). A noble variety of the dark crimson section: the flowers are of perfect shape and coloured deep crimson with a prominent yellow crest. The spike bore six flowers.

Cattleya Prince Shimadzu var. Titanic (*Hardyana × Tityus*) from Messrs. Flory and Black, Slough. This fortunate cross has already received a First-Class Certificate and the variety now shown is larger than the original, of perfect shape and rich colour. The sepals and very broad petals are clear mauve; the broad lip has a deep crimson front and yellow disc.

Awards of Merit.

Odontioda Joiceyi var. John Cowan (*Oda. Coronation × Odm. promerens*) from J. J. Bolton, Esq., Claygate Lodge, Claygate (gr. Mr. J. Lyne). A noble variety with a spike of eleven finely-formed flowers of rich claret crimson colour, with a white margin and white front to the lip, the base being blotched with crimson.

Miltonia Beau Brummell (*Bleuana Queen Elizabeth × Venus*) from H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). The flowers are nearest to those of M. Bleuana, light rose in colour, the Queen Elizabeth variety showing in the violet-purple inner halves of the segments, and M. Venus in the distinct red rays at the base of the lip.

Odontoglossum Syrinx var. Helius (*O. crispum xanthotes × waltonense*) from Messrs. J. and A. McBean, Cooksbridge. The finest light yellow hybrid Odontoglossum, the flowers in size and shape being equal to the finest O. crispum and in colour clear canary-yellow, with an occasional red spot on the sepals and base of the lip. The spike bore four superb flowers.

Cultural Commendation.

To Mr. Lewis Smith, gardener to Captain Maldwin Drummond, Cadland Park, Southampton, for a noble plant of the old white, rose-scented Maxillaria Harrisoniae, with nine spikes, bearing together eighteen massive flowers. Captain Drummond also showed a grand specimen of Dendrobium nobile, Cadland Park variety, with one hundred and fifty flowers of fine quality.

Other Exhibits.

Lieut.-Col. Sir Geo. L. Holford, C.I.V., K.C.V.O., Westonbirt, Tetbury (gr. Mr. H. G. Alexander), showed Brasso-Laelio-Cattleya Caligula, Westonbirt variety (L.-C. callistoglossa × B.-C. Cliftonii magnifica), one of the largest and most perfectly formed of the class. The broad sepals and petals are blush-pink, the fine, well-rounded lip is Tyrian-purple with a rose margin and pale yellow disc; Laelio-Cattleya Elinor Westonbirt variety, with six, orange-tinted, Apricot flowers on a spike; and a fine form of the emerald-green and white Cypripedium Holdenii, Westonbirt variety (callosum Sanderae × Maudiae), a fine flower with large white dorsal sepal with dark green lines.

Groups.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), staged a very interesting group in which species of Orchids were, as usual, a pleasant feature. Among them the pretty Aspasia lunata, Bulbophyllum galbinum, and Microstylis Scottii with its pretty, quaintly-coloured leaves and slender spikes, were links with the past when species of Orchids were paramount in collections. Among showier varieties were Odontoglossum crispum Lorraine with purple spotted flowers and other pretty hybrids.

Messrs. J. and A. McBean, Cooksbridge, were awarded a Gold Medal for a grand group well representing the Orchids of the season. In the middle of the exhibit were fine hybrid Cymbidiums arching over from the back, with several distinct forms of C. insigne, one form being tinged with purple and with a purple lip. On each side were fine specimens of the large yellow Oncidium Marshallianum, the very pretty and useful O. Macbeanianum and other Oncidiums, with a varied selection of white and blotched forms of Odontoglossum crispum and scarlet Odontiodas. Prominent in the group were Odontoglossum Indian Prince (Solon × St. James), a noble flower of intense claret-crimson colour with pure white margins; some very fine Miltonias and Odontiodas and, among other species, the showy Maxillaria Sanderiana.

Messrs. Stuart Low and Co., Bush Hill Park, Enfield, and Jarvisbrook, Sussex, secured a Siver-gilt Banksian Medal for a very interesting group in which both hybrids and species were well represented. Among the species specially remarkable were plants of the typical Vanda Parishii with pale yellow flowers spotted with red, and V. Parishii Marriottiana with rose-purple flowers and darker lip. Both have the same fleshy, ovate, oblong leaves and stout spikes of wax-like flowers which, however, are very dissimilar in colour. The group contained varieties of Dendrobium, including D. aureum and its much showier hybrids, D. atro-violaceum, D. nobile varieties, the rare Epidendrum Parkinsonianum and the yellow Odontoglossum Lindenii, with a selection of pretty Bulbophyllums and Cirrhopetalums. Among the hybrids were showy Cattleyas, Brasso-Cattleyas, including B.-C. Cliftonii magnifica, various Dendrobiums and Sophronitis hybrids. Hybrid Miltonias were well displayed.

Messrs. Charlesworth and Co., Haywards Heath, staged a selection of rare Orchids, in which their Odontonia Olivia var. Fascinator, a pretty yellow flower with orange-brown blotches; Odontonia Dora; Vuylstekeara Rutherfordii, rich claret-purple; Odontoglossum pluntonense var., and O. Clotho II., were very attractive.

Messrs. Sanders, St. Albans, staged a selection of rare Orchids, the leading feature in which was their new Cymbidium Nellii var Surprise (Albatross × Pauwelsii), a charming form with clear canary-yellow flowers with purple markings on the lip; Odontioda Grenadier var. Empire, one of the finest rich scarlet-crimson Odontiodas yet shown, and Odontoglossum Gala (nebulosum × harvengtense), a pretty variety intermediate between the parents.

Narcissus and Tulip Committee.

Present: Mr. Geo. Monro (in the chair), Miss Wilmott, Rev. Rollo Meyer, Rev. J. Jacob, Messrs. P. R. Barr, F. H. Chapman, F. Barchard, J. W. Jones, G. Churcher, J. de Graaff, G. H. Engleheart, H. V. Warrender, C. C. Titchmarsh, R. Cory, W. Poupart, Alister Clark, G. W. Leak, J. D.

Pearson, Chas. H. Curtis, W. B. Cranfield and R. W. Ascroft (Sec.).

FIRST CLASS CERTIFICATE.

Narcissus Daphne.—This is one of the finest market varieties yet seen. The variety is a sport from N. poeticus ornatus, the flowers being double, very full and of the purest white. It is also highly fragrant and produced on stiff, erect stems. A beautiful and most striking flower. This variety has previously received two Awards of Merit from the Committee. Shown by Mr. **Geo. Monro**, Covent Garden.

AWARDS OF MERIT.

Narcissus Ettrick.—A large Giant Leedsii having a cream trumpet and white perianth segments. Shown by Mr. **H. Chapman**, Rye.

Narcissus Warspite.—A white Barrii with overlapping segments of smooth texture and a large cup rimmed with orange-red. A handsome flower of good substance. Shown by the **Donard Nursery Co.**, Newcastle, Co. Down.

GROUPS.

A representative collection of Narcissi was staged by Messrs. **J. R. Pearson and Sons, Ltd.**, and the flowers were of high quality. Tenedos, a Giant Leedsii; Sunset Glow, a fine Incomparabilis variety with a large orange-red cup; John Drinkwater, an excellent Poeticus variety, and Wheel of Fortune, a large yellow Trumpet of good form, were a few of the best varieties (Silver Banksian Medal).

Messrs. **Sutton and Sons** showed a very pleasing group of Narcissi tastefully arranged with Asparagus Sprengeri foliage. Of Poeticus varieties were large columns of Red Rim, Horace and Virgil, while other fine varieties were Firetail, Croesus, Cassandra, Van Waveren's Giant and Golden Harvest, a mammoth yellow Trumpet variety. (Silver Banksian Medal).

The Welsh Bulb Fields showed a magnificent selection of Narcissi arranged with fine effect. The Barrii and Incomparabilis divisions were outstanding, and of the many varieties represented were Jorrocks, Enid, Peggy, Dorothea, Jewel, Cuckoo and Pelican. Homer, Evadne, were two fine Poeticus varieties, and the varieties Twinkle and June had quite a distinct reddish-buff in the perianth segments; the variety Nanny Etticoat, possessed a trumpet flushed with apricot-pink (Silver Banksian Medal).

The **Donard Nursery Company** was responsible for a very fine exhibit, and of the many varieties exhibited, were Festive, Market Gem, Selina Malone, Silver Fox, Lady Lilford, a fine white Barrii, and Warspite, a similar variety which received an Award of Merit. There were also large numbers of seedlings of fine quality included in the exhibit (Silver-Gilt Banksian Medal).

Messrs. **Barr and Sons** again displayed a large group of Narcissi and of named varieties were Mrs. R. O. Backhouse, with a pink buff trumpet and white segments; Epic, Kestral, Snow King, and Sarchedon, four fine Poeticus varieties, Alasnan, yellow Trumpet, and President Faure, a large white Trumpet flower (Silver-Gilt Banksian Medal).

Mr. **Herbert Chapman** had a group of the newer varieties including Silver Salver, a pure white flower; Firetail, Gallipoli, with bright orange-red cup, and Socrates, a good Poeticus variety, together with a number of unnamed flowers (Silver Banksian Medal).

Mr. **W. P. Downes** showed a collection of Narcissi tied in market bunches of twelve stems. Some of the best varieties were White Lady, Gloria Mundi, Croesus, Boadicea, Evangeline, Patriot, and King Alfred. Strawberries and Cream, Silver Rose, and Mary Copeland, three excellent double varieties of beautiful form were shown by Mr. **W. F. M Copeland** (Bronze Banksian Medal).

Messrs. **J. Carter and Co.** showed a selection of Darwin and Breeder Tulips growing in pots and interspersed with Adiantum Ferns. The varieties included Donders, deep red; William Copland, lavender; Bartigan, cerise red; Faust, violet-purple; King Harold, deep red; and the fragrant Dom Pedro, brown and violet (Silver Banksian Medal).

A collection of Narcissus was also staged by Messrs. **R. H. Bath, Ltd.**, and of named varieties were Achievement, a mammoth Barrii variety with large cup and rimmed with orange-yellow; Rhapsody, a fine Poeticus of good substance and form; Red Guard, and The Don, a fine bicolor Trumpet (Silver-gilt Banksian Medal).

Floral Committee.

Section A.—*Present*: Messrs. H. B. May (in the Chair), J. F. McLeod, A. Turner, J. M. Bridgeford, John Heal, W. Howe, W. B. Gingell, E. R. Janes, Hugh Dickson, M. C. Allwood, J. B. Riding, H. J. Jones, H. R. Darlington, W. Stephens, D. B. Crane, Chas. E. Pearson, W. P. Thomson, W. Cuthbertson and W. D. Cartwright (Sec.).

Section B.—*Present*: Messrs. G. Loder (in the Chair), W. J. Bean, A. Bedford, T. Hay, G. Yeld, G. Reuthe, H. V. Warrender, G. Harrow, W. B. Baker, R. C. Notcutt, W. B. Cranfield, F. G. Preston, C. Williams, R. W. Trotter, Reginald Cory, Clarence Elliott, H. D. McLaren and E. H. Wilding.

AWARDS OF MERIT.

Hibbertia volubilis.—A native of Queensland and New South Wales, and figured in *Bot. Mag.*, p. 449. The trained specimens exhibited were exceptionally well grown. The flowers are yellow and measure about three inches across. They are borne singly and are terminal. The stamens are numerous, of bright yellow colour and are closely set in the centre of the flower. Shown by **Sir W. Lawrence**, Burford Lodge, Dorking.

Aubrietia Gloriosa.—A free-flowering variety with large-sized blooms of a soft mauve hue, with small white eye A useful plant for the rock garden. Shown by Mr. **Maurice Prichard**, Christchurch.

Rose Clovelly.—A beautiful hybrid Tea variety with large pink blooms of good shape. This variety received a Certificate of Merit from the N.R.S. at the Spring Show on April 11th. Shown by Mr. **Elisha J. Hicks**, Twyford.

Silene acaulis Elliott's var.—A very dainty variety, forming a dense cushion-like growth of bright foliage, and bespangled with small pink flowers carried about an inch high. Shown by Mr. **Clarence Elliott**, Stevenage.

Rhododendron Souvenir de Dr. S. Endtz.—Derived from crossing Pink Pearl and John Walter. The flowers are carried in large clusters of about twenty flowers, some of the individual blooms measuring about four inches in diameter. The colour is rose pink, deeper in tone than the first-named parent. The upper petals are blotched with well defined brown spots. Shown by Mr. **L. J. Endtz**, Boskoop, Holland.

Rhododendron brachydum primum.—A hybrid obtained from R. flavidum (Wilson No., 1773), and R. brachyanthum (Wilson, No. (6771). The flowers are pale yellow, tubular, and measure about one inch long; the mouth of the flower is about ¾-inch across. The leaves are lanceolate, about 1 inch by ½ inch, pointed, and are marked with brown minute spots in their undersurfaces. Shown by Mr. **J. C. Williams**.

Viola Black Knight.—A pretty, deeply coloured flower—almost black—with a yellow crest. The outer surface of the three lower petals is shaded with violet. Shown by Mr. **T. Carlile**, Twyford.

Prunus serrulata var. Kogina.—A charming white-flowered variety with quite large flowers borne in clusters of threes and fours on long pedicles. The leaves are greenish brown to reddish brown when unfolding. Shown by Mr. **C. Ingram**, Bevender.

Schizocodon macrophylla.—A charming species bearing racemes of 16 to 20 deep pink flowers The sepals are deeply serrated and the white, epipetalous stamens form a conspicuous ring at the throat of the flower. Shown by Mr. **G. Reuthe**, Keston.

OTHER NOVELTIES.

Sir **William Lawrence** showed a specimen of Crinum yemense with four open and eight unopened flowers of a blush shade; the plant was about 2 ft. high. The same exhibitor showed Ismene (Pancratium) Sulphur Queen. Mr. **N. G. Haddon**, West Porlock, Somerset, showed Cytisus racemosus, Clematis indivisa, and Prostanthera rotundifolia grown in the open.

GROUPS.

A very bright group of forced Lilacs and Azaleas was staged by Messrs. **R. and G. Cuthbert**: the former included the double white Casimir Perier, Souvenir de Louis Späth, deep lilac; Charles X., pale lilac; and Marie Legraye, white,

Messrs. **J. Cheal and Sons, Ltd.**, exhibited the large-flowered Prunus Hisakura together with Hydrangas, Amelanchier canadensis and Magnolia alba superba. The same firm also showed alpines and varieties of Mignon and Star Dahlias.

Messrs. **R. C. Notcutt** had a very attractive group of forced shrubs of fine quality, and a few of the best were Pyrus Eleyii, with large rose-purple flowers; Fremontia californica, bright yellow; Cytisus Beanii, Osmanthus Delavayii, Cerasus pilocuiscula media, Enkianthus campanulatus and well flowered sprays of Prunus Blirieana rosea fl. pl., with deeply coloured foliage and large pink flowers (Silver Banksian Medal).

Hybrid Rhododendrons and Azaleas were shown in spendid condition by Messrs. **R. W. Wallace and Co.**; the former included the varieties Hugo de Vries, with large trusses of deep rose-pink blooms; Dr. S. Endtz, of similar colour, and White Pearl. Azaleas were represented by the white and freely flowered specimens of A. ledifolia alba, A. coccinea speciosa, orange; Nancy Waterer, bright yellow; and Jeanne, bright orange-apricot (Silver-Gilt Banksian Medal).

Messrs. **John Waterer Sons and Crisp, Ltd.**, had an attractive group of hybrid Rhododendrons, including Alice, large bright pink flowers; Countess of Athlone, pale lavender; Earl of Athlone, deep scarlet, and Bernard Crisp, lilac-pink. In contrast to these large-flowered specimens were the low-growing clump of R. fastigiatum, with blue flowers, and R. punctatum, white (Silver Banksian Medal). The same firm also displayed a collection of Alpines, flowering shrubs and Irises (Bronze Banksian Medal).

Rhododendrons were also shown by Messrs. L. J. Endtz and Co., Boskoop, Holland, who staged magnificent specimens of the hybrids Professor Hugo de Vries, pink: Louis Pasteur, white, shaded with red; and Souvenir de Dr. S. Endtz, rose-pink.

T. H. Lowinsky, Esq. (gr. Mr. G. Dibble), Sunninghill, showed a magnificent selection of hybrid Rhododendrons, and the specimen plants shown were of exceptional quality each carrying numbers of large-flowered trusses. None of the varieties have yet been named and the colours ranged from pure white to pink and deep scarlet (Silver.Gilt Banksian Medal).

Lionel de Rothschild, Esq. (gr. Mr. F. Kneller), Exbury, brought a collection of Rhododendrons, many of them being new species recently introduced from China. There was also a very fine hybrid raised between R. Fortunei and Thomsoni, with deep rose-pink flowers, and other outstanding vases were those of R. campylocarpum, yellow; R. neriiflorum, deep scarlet; and R. campanulatum, lavender-blue (Silver Banksian Medal).

G. W. E. Loder, Esq., Ardingley, also showed a few vases of Rhododendrons of hybrids of the rarer species, and included R. Baileyi, rose-violet flowers; R. Jacksoni, pink, R. Davidsonianum, rose-lilac; and R. campanulatum var. Wallichii, pale lavender.

Among the many fine varieties of Rhododendrons displayed by Sir J. Ramsden, Bart. (gr. Mr. G. Taylor) Bulstrode Park, Gerrard's Cross, were R. Dalhousiae, white; R. campanulatum, white, blotched with purple; R. Sesterianum, white; and a number of R. Thomsoni crosses (Silver Banksian Medal).

Just inside the entrance a large group of alpines and flowering shrubs was shown by the Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Elstree. The exhibit was arranged with great decorative skill, and the quality of the plants throughout was of a very high standard. Of the many subjects in flower were good pans of Primula hirsuta Mrs. J. H. Wilson, deep violet-blue; Polygala Chamaebuxus, Gentiana verna, Viburnum Davidii, Corydalis Allenii and Draba Dedeana. Of flowering shrubs were fine specimens of Rhododendron indicum Hinodegeri, bright rose; R. hippophaeoides, lavender; R. ledifolium Nordiana, white; and Ledum palustre (Silver-Gilt Banksian Medal).

Mr. G. Reuthe showed a large collection of Rhododendrons and Alpines; among the latter were Trillium sessile californicum, Tulipa praestans and T. Eichleri, both with scarlet flowers; and Erythoniums, Primulas and Anemones in variety (Silver Banksian Medal).

Messrs. R. Tucker and Sons showed a large collection of Alpines in pots of which Anemone Halleri, Daphne arbuscula, Primula glaucescens and Androsace Watkinsii were a few of the best (Silver Banksian Medal).

Mr. E. G. Wood also had a very fine selection of Alpines and flowering shrubs (Silver Banksian Medal).

Messrs. Carter Page and Co. exhibited a very attractive group of alpines, including Geum montanum, yellow; Anemone sylvestris, Primulas in variety, and Tulipa Clusiana. Bowls of Violas were also staged by this firm (Bronze Banksian Medal).

Mr. B. Pinney showed vases of Narcissi, Irises and Violets, and Mr. G. R. Downer brought Violas, Aubrietias, and other alpines in variety.

Their well-known strain of St. Brigid Anemones was staged by Messrs. Reamsbottom and Co. (Bronze Banksian Medal).

Mr. J. Carlile showed Violas and the pink Aethionema Warley Rose.

Neat little pot specimens of Cytisus Dorothy Walpole were exhibited by Messrs. W. Watson and Sons, Ltd., Killiney, Co. Dublin.

Mr. John Crook showed a very fine selection of Polyanthuses in many delightful shades of colour (Bronze Banksian Medal).

Messrs. W. H. Rogers and Son, Ltd. had a neat collection of Alpines and shrubs, including Armeria caespitosa, Violas in variety, and well-flowered specimens of Leptospermum thymifolia, white and L. Nuirni, deep rose (Bronze Banksian Medal).

Mr. G. A. Miller showed a fine selection of Primulas and Polyanthuses in many shades of colour (Silver Banksian Medal) and Messrs. Ladhams, Ltd., also showed Violas, Alpines and flowering shrubs (Bronze Banksian Medal).

Messrs. Maxwell and Beale showed a collection of alpines, including Gentiana acaulis, Mesembryanthemum aureum, orange; and M. deltoides (Bronze Banksian Medal).

Messrs. Pulham and Son planted a rock garden with Primulas, Saxifrages, Aubrietias, and Violas in variety (Bronze Banksian Medal), and from Mr. G. H. Dalrymple came a collection of pink seedlings of Primula pulverulenta. The plants exhibited were very robust and possessed large spikes of flowers.

Messrs. Bakers, Ltd., showed Primula Red Hugh, deep bronze red; Shortia galacifolia, and Draba bruniaefolia in their collection of hardy plants, and other exhibitors of Alpines and hardy flowers included Messrs. Skelton and Kirby, and the Misses K. and E. Hopkins.

Roses were exhibited by Mr. George Prince who staged large epergnes of Pax, white; Padre, orange cerise; Coral Cluster, a dwarf Polyanthus variety, with pale salmon pink flowers; Souvenir de Claudius Pernet, a yellow bloom of large size, and Mrs. Foley Hobbs, white shaded with pink (Silver Banksian Medal).

A neat display of Polyantha Roses was exhibited by the Rev. J. H. Pemberton, of which Echo, pale pink; Edith Cavell, bright red; and Juliana, pale coral pink, were a selection (Bronze Banksian Medal).

Mr. Elisha J. Hicks was also responsible for a pleasing group of Roses, and the varieties, America, deep rose pink; Clovelly, pale pink; and Mrs. H. Stevens, white, were three fine sorts (Silver Banksian Medal).

Messrs. Frank Cant and Co. showed a few Roses in vases and exhibition boxes (Bronze Banksian Medal), and Messrs. B. R. Cant and Sons had beautiful blooms of Phoebe, cream; Rev. Page Roberts, creamy yellow; Una, white; and Cupid, a large single flower of delicate shell pink shade (Bronze Banksian Medal).

Messrs. Stuart Low and Co. had a pleasing group of Carnations of which the varieties White Pearl, Topsy Eileen Low, and Lady Inverforth were a selection. The same firm also showed Roses and a collection of beautifully grown specimens of Acacias, including A. armata, with large flowers; the graceful A. cordata; and A. pendula, with pale yellow flowers (Silver Banksian Medal).

Messrs. Allwood and Co. staged Carnations of high quality, and the vases of Laddie White Pearl, Coral Glow, Eldora, and Topsy were particularly fine (Bronze Banksian Medal). Carnations were also exhibited by Mr. C. Engelmann, including the varieties Bona, salmon pink; Mrs. Hamilton Fellowes, violet; Maine Sunshine, yellow; Laddie, salmon pink; and Benora, white ground striped with scarlet (Silver Banksian Medal)

The Maytham Gardens made a feature of Veronica Hulkeana; the specimens were exceptionally well grown and spikes of lilac-blue flowers were borne in profusion. The group was relieved by bowls of Dutch Irises. (Bronze Banksian Medal).

Mr. James Douglas showed a group of finely grown florists' Auriculas representing the various sections. (Silver Banksian Medal).

Messrs. Jarman and Co. staged Pelargoniums and Violas in variety, the latter including Violet Queen, Purple Robe and Heavenly Blue. (Bronze Banksian Medal).

A delightful strain of Schizanthus grandiflora was shown by Messrs. Godfrey and Son. (Bronze Banksian Medal).

Fruit and Vegetable Committee.

Present:—Messrs. Jos. Cheal (in the Chair), W. G. Lobjoit, F. Jordan, E. Beckett, A. Bullock, J. Wilson, E. Neal, W. H. Divers, T. Pateman, W. Bates, W. F. Giles, H. V. Taylor, G. Reynolds, Geo. F. Tinley, E. A. Laxton, A. H. Pearson, P. C. M. Veitch, S. B. Dicks, H. S. Rivers, John Basham, and W. Poupart.

A dish of King of Tompkin's County Apples was exhibited by Sir John Ramsden, Bt., Bulstrode Park, Gerrards Cross. They were exceedingly handsome specimens, equal to orchard-house fruits in their delicate appearance and fine colouring. They were grown in Kenya Colony, on the west slope of Aberdares, at 8,300 feet elevation.

The only other exhibit was fruits of Cyphomandra betacea, which are said to be an excellent substitute for Tomatos. The fruits are somewhat egg-shaped, and coloured Apricot-yellow; they were illustrated in *Gard. Chron.* March 19th, 1887, Fig 77.

GLASGOW AND WEST OF SCOTLAND.

At the April meeting of the Glasgow and West of Scotland Horticultural Society an interesting lecture was delivered by Mr. Robert Fife, President of the Royal Caledonian Horticultural Society, upon the Early-Flowering Chrysanthemum.

The lecturer dealt with the early history of the flower and traced it down to the present time. He discussed the time of propagation and the relation of the same to the period of flowering. It was observed that considerable diversity of opinion existed as to the best times and methods of propagation. and also as to the correct time for planting out. It had been his experience over a long series of years that cuttings put in during December and January came into flower much later, as a general rule, than those propagated in February, March, or even April. This appeared to be somewhat unnatural, but it was found to be a reality.

Considerable time was given to the question of trials. Mr. Fife has had a long experience in these matters and he has conducted extensive trials of this flower for many years. Having shown the great difference in the times of flowering due to early or late propagation, it was pointed out that plants sent to Wisley or any other trials were undoubtedly propagated at varying dates and consequently bloomed earlier or later accordingly. That was borne out by the fact that in several instances varieties which are sports from the same source, or which usually flower about the same time, had been recorded as blooming many weeks apart. This showed the necessity for plants which might be used in any future trial being propagated on the spot on a fixed date if proper results were to be obtained.

The trial which took place at Wisley last year came in for severe criticism from the lecturer and also from many members of the audience in the course of the discussion. It is a fact that the Glasgow Show is famous for the excellence of the Early-flowering Chrysanthemums that are exhibited annually there, and the growers in the West of Scotland are experienced and able cultivators. The results of the Wisley trials, as published in the last issue of the *Journal* of the Royal Horticultural Society, were described by lecturer and critics alike as totally misleading to growers throughout the country in general, and the synonyms which were recorded were declared to be absurd. The meeting emphasised the necessity for some kind of national trials which would be of real educative value and which would carry weight and confidence so far as practical growers were concerned.

In the course of discussion is was suggested that the time had come for a Scottish trial in one of the Glasgow parks or other centre, or alternatively that the Royal Caledonian Horticultural Society and the Glasgow and West of Scotland Horticultural Society should join hands in securing a Scottish trial ground. Mr. Fife said that he had been authorised by the Council of the Royal Caledonian Society to approach the Council of the Royal Horticultural Society on this subject, and with the view to having simultaneous trials in various parts of the country. It was thereupon agreed by the meeting that a joint appeal by the Edinburgh and Glasgow Societies should be made with a view to having the idea carried into effect. This is to be done immediately and the Council of the Royal Horticultural Society will have the proposal laid before it in due course.

The meeting was a large one and it was apparent that the results of the Wisley trials were looked upon as wholly misleading so far as the experience of growers is concerned in the West of Scotland. Several varieties which have been bracketed as synonymous by the Royal Horticultural Society were discussed and in most cases it was agreed that some serious error had been made by the judging commitee at Wisley. The selected dozen, too, recommended by the Royal Horticultural Society, were characterised as being far too late in flowering for the majority of growers.

SPALDING DAFFODIL SHOW.

The exhibition, held under the auspices of the Spalding and District Bulb Growers' and Market Gardeners' Association was held in the Corn Exchange, Spalding, on Saturday evening, the 26th ult. Although the show was not opened to the public until 6.30 p.m., no fewer than thirteen hundred and forty people paid for admission, and the Secretary and Committee are to be congratulated on the high standard and excellence of the show. Mr. Geo. Monro, Covent Garden, kindly acted as judge, and in the evening he delivered an interesting and highly instructive address on "Grading, Packing, and Marketing Flowers."

The silver cup, presented by Messrs. H. Homan and Co., was awarded to Mr. Bert Baxter, Park Road, Spalding, who was the sole competitor in the principal class for a collection of Narcissi, representing as far as possible the various sections, and arranged on a table of unrestricted space. Of yellow and bicolor Trumpet varieties, King Alfred, Glory of Sassenheim, Treserve, Olympia, Glory of Nordwyk, and Van Waveren's Giant were a selection. Firetail, Croesus, Early Surprise were a few of the best Barrii type, while of Poeticus varieties were excellent vases of Horace, Thelma, ornatus, maximus, Dante, and Glory of Lisse. The group was very effectively arranged, and forty-two varieties were represented.

For a representative collection of Narcissi, arranged on a table length of six feet by three feet six inches, Mr. R. D. Wellband, London Road, Spalding, was awarded chief honours. The flowers throughout were of the finest quality, and the twenty-five varieties staged included Seagull, Ayscoughfee, Glory of Nordwyk, King Alfred. The Welland, Sulphur Phoenix, Glory of Sassenheim, Purity and Tresserve. This group was deservedly awarded the Challenge Cup offered by the Spalding Bulb Company for the best exhibit in the show. Messrs. J. T. White and Sons, Spalding, were very highly commended, and in their collection Robert Sydenham, Olympia, Whitewell, ornatus maximus, Thelma and King Alfred were a few of the best varieties exhibited.

In the class for six vases of Trumpet Daffodils there were fourteen exhibitors and Messrs. J. T. White and Sons were outstandingly first with a highly creditable half-dozen varieties of perfect flowers of King Alfred, Herbert Smith, Robert Sydenham Olympia and Van Waveren's Grant, all yellow trumpet varieties, and Spring Glory, an excellent bicolor sort. The second prize went to Mr. R. D. Wellband, London Road, Spalding, who showed excellent specimens of Tresserve, Weardale Perfection, and Glory of Nordwyk, while the third prize was awarded to Mr. E. W. Jacob, London Road, Spalding.

In a similar class for medium-cupped varieties of Narcissus, Sir Watkin type, Messrs. D'Alcorn and Sons, London Road, Spalding, were the first prize winners, with magnificent vases of Flame, Seagull, Lady Margaret Boscawen, Brigadier, Sir Watkin and Torch. Mr. Fred Culpin, Burnley House, Spalding, gained second prize with three charming vases of Flame and Gloria Mundi. Mr. H. Bromley, Surfleet, followed, and employed Sir Watkin only.

Of the seven competitors in the class for six vases of small-cupped Narcissi, Poeticus varieties included, Messrs. J. T. White and Sons were again first with splendidly grown and clean flowers of Thelma, Queen of England, King George, ornatus maximus, Miss Willmott and Red Beacon. Mr. Bert Baxter was second and had good blooms of Horace, Glory of Lisse and ornatus maximus. Mr. R. D. Wellband was placed third.

The class for a box of Trumpet Daffodils, one variety, bunched and packed as for market, attracted no fewer than twelve competitors and competition was very keen. The first prize was awarded to Mr. J. T. White and Sons for a perfectly packed box of Spring Glory; the "one way" style of packing was adopted, and this box was also awarded the President's Prize. Mr. Bert Baxter was second, who had a well filled box of King Alfred, and Mr. R Cooke, Spalding, was placed third. Mr. F. H. Bates, Hawthorn Bank, Spalding, was very highly commended for his box of Victoria.

The same number of competitors entered the class for the best packed box of medium-cupped varieties, and Mr. Bert Baxter led with a neatly filled box of Sir Watkin. Mr. E. W. Jacob was second with Seagull, and Mr. Fred Culpin was third with Flame. In a similar class for small-cupped varieties chief honours again went to Mr. Bert Baxter who had a faultless box of the variety Horace. He was closely followed by Messrs. J. T. White and Sons with Ornatus maximus, while third prize went to Mr. R. D. Wellband with Seagull. Their were ten competitors in this class.

Messrs. J. T. White and Sons led in the class for the best bunch of trumpet Daffodils, bunched as for market, and showed the variety Van Waveren's Giant, and were also successful in the class for the best market bunch of a small-cupped varieties with ornatus maximus. Mr. F. W. Bates was premier prize-winner for the best bunch of a medium-cupped variety with Sir Watkin. Mr. G. N. Wright, Whaplode, was very highly commended for his bunch of Seagull.

For the best representative collection of Narcissus confined to growers whose acreage of bulbs does not exceed three acres, Mr. F. Baxter, Pincheck, was awarded the first prize and showed eighteen magnificent vases, of admirable quality. These included ornatus maximus, Horace, Glory of Sassenheim, King Alfred, Colorable, and Glory of Lisse. Mr. L. F. Brown, Pinchbeck, was second with a very commendable group and Mr. A. T. Royce, Stonegate, Spalding, was third. The best packed boxes of a trumpet Daffodil and of any other variety in the classes confined to smaller growers, were shown by Mr. F. Baxter, who employed the varieties King Alfred and Sir Watkin respectively. Both these boxes were awarded special prizes.

The Spalding Bulb Company showed a number of new seedlings, together with the named varieties, Sunrise, Lord Kitchener, Dick, a large bicolor variety, Casimir Perier, white Trumpet Bernardino, Spring Glory, and Croesus. From Messrs. R. H. Bath, Ltd., Wisbech, also came a display of seedlings of fine quality and named varieties were represented by The Marquis (yellow Trumpet), Crystal Queen (Giant Leedsii), Flame (yellow Barrii), Don (bicolor Trumpet) and Dosoris (White Barrii). Messrs. Geo. Elsom and Sons, Market Place, Spalding, had a collection of Daffodils, of which Glory of Lisse, Elvira, King Alfred, White Lady, and White Nectarine were a selection; they also displayed florists' sundries.

Messrs. Warnaar and Co., Sassenheim, Holland, displayed Golden Harvest (yellow Trumpet); Brilliancy (Barrii); Helios Incomparabilis); Josine (bicolor Trumpet) and Tenedos (Giant Leedsii), white. Messrs. M Van Waveren and Sons, Ltd., Hillegom. Holland staged the large trumpet varieties Whistler, Mr. Robert Sydenham, Olympia, Harold Beal, Van Waveren's Giant, and Southern Gem, a small-cupped Leedsii variety. Messrs. H. Homan and Co., Oegstgeest, Holland had some magnificent vases of Bernardino, Sunrise, Dorothy (White Barrii) and Arthen (small cupped Leedsii).

Messrs. Geo. Monro, Ltd. (agent Mr. F. Culpin) was responsible for a very attractively arranged group of sundries and Messrs. Johnston Bros. showed a group of implements. Boxes and trays were shown by Mr. W. Groom, Spalding.

MARKETS.

COVENT GARDEN, Tuesday, April 29, 1924.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz. ...	10 0–18 0
—elegans	10 0–12 0
Aralia Sieboldii ...	9 0–10 0
Araucarias, per doz.	30 0–42 0
Asparagus plumosus	12 0–15 0
—Sprengeri ...	12 0–18 0
Aspidistra, green	48 0–72 0
Asplenium, per doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Cacti, per tray, —12's, 15's ...	5 0– 7 0
Cinerarias, 48's, per doz.... ...	18 0–24 0
Crotons, per doz.	30 0–42 0
Cyrtomium ...	10 0–15 0

	s. d. s. d.
Erica gracilis. 48's per doz. ...	24 0–30 0
—60's per doz. ...	12 0–15 0
—persoluta, 48's, per doz. ...	30 0–42 0
Genistas, 48's, per doz.	18 0–21 0
Marguerites, white, 48's, per doz. ...	18 0–21 0
Nephrolepis, in variety	12 0–18 0
—32's	24 0–36 0
Palms, Kentia ...	24 0–30 0
—60's	15 0–18 0
—Cocos	24 0–36 0
Pteris, in variety	12 0–21 0
—large 60's ...	5 0– 6 0
—small	4 0– 4 6
—72's, per tray of 15's	3 6– 4 0

Remarks.—Conditions have changed somewhat during the past week. There has been a general increase in all supplies. Daffodils, Narcissi, and Tulips have been arriving in large quantities during the past week; the former have been difficult to clear at half the price realised the previous week. Roses have been sufficient for all requirements, and their prices have been easier, notwithstanding the excellent quality of these blooms. Irises are arriving in excellent condition and a good selection are on sale, both from home growers and from Guernsey. Prices for Lilium longiflorum and Richardias (Arums) have now returned to a more normal figure, the supplies being ample at the present time. Similar remarks apply to Carnations, the quality of these flowers being generally good. The newest subjects in this department are Gardenias, Gypsophila elegans, Nigella, Stephanotis, mauve Statice (S. sinuata), Ixias, and some fine St. Bridgid Anemones. The supplies from the Channel Islands have suffered owing to the warmer weather, especially the Narcissi. The main supply now consists of Irises, Tulips, Anemones, and Sweet Peas; a few bunches of Gladiolus Peach Blossom were on sale this morning. Supplies from France are gradually lessening; many of the plants suffer in transit. There is still a fair demand for white blooms, such as double white Stocks and Star of Bethlehem. These, with Gypsophila, Marguerites, Ixias, and Irises cut practically in bud are the most reliable subjects arriving from this quarter.

Fruit: Average Wholesale Prices.

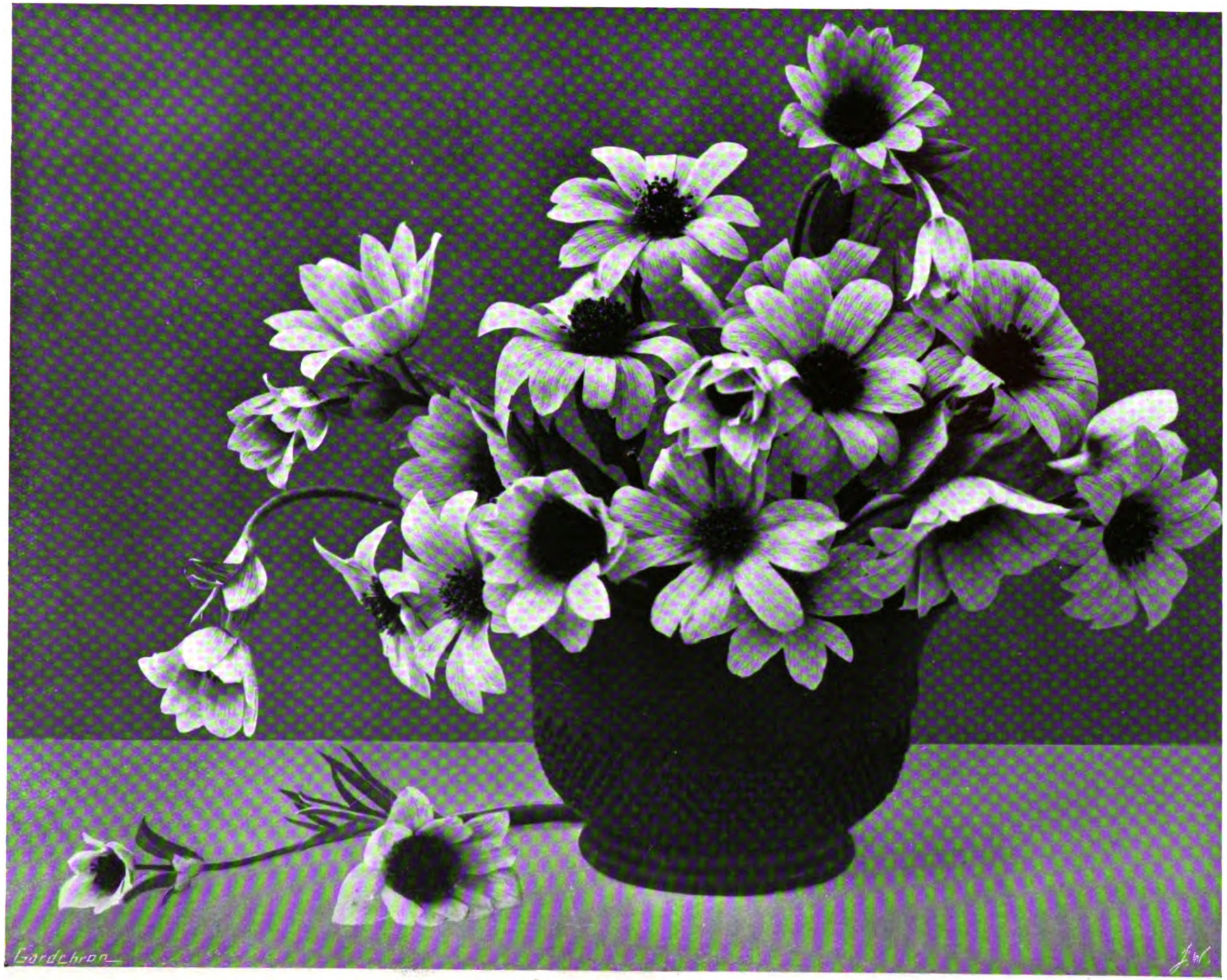
	s. d. s. d.
Apples—	
—Albemarle, barrel	30 0–35 0
—Bramley's Seedling, best, bus.	17 0–18 0
—Second, bus. ...	10 0–11 0
—Spitzenberg ...	11 0–13 0
—Oregon Newtown	12 0–14 0
—Winesaps ...	10 0–12 0
Nova Scotian—	
—Ben Davis ...	24 0–26 0
Bananas, singles	15 0–25 0
—doubles	15 0–25 0
Australian Apples—	
—Cox's Orange Pippin	12 0–25 0
—Cleopatra ...	13 0–17 0
—Jonathans ...	12 0–14 0
—Dunn's Seedling	13 0–15 0
Grapes—	
—Almeira, barrel	20 0–25 0
—Colmar	8 0–10 0
Grape Fruit ...	17 0–22 0
Lemons—	
—Naples	12 0–20 0
—Messina, box ...	8 0–12 0
—Palermo... ...	7 0–10 0

	s. d. s. d.
Nuts—	
—Brazil, cwt. ...	55 0–65 0
Oranges—	
—Jaffa	20 0–22 0
—Seville	5 0–10 0
—Spanish 300 ...	18 0–35 0
— — 360	12 0–18 0
— — 504	12 0–15 0
Pines, case ...	36 0 60 0
South African Pears—	
—Glou Morceau...	5 0– 6 0
—Winter Nelis ...	5 6– 7 0
—Doyenné du Comice	8 0–12 0
—Josephine ...	5 0– 7 0
—Keiffer	— 4 0
—Lady Downes...	12 0–14 0
—Red Hanepoot	8 0–12 0
—Waltham Cross	12 0 14 0
—Barbarossa ...	12 0 14 0
Strawberries, forced, lb. ...	5 0–12 0

Remarks.—The demand has shown some improvement as compared with that ruling the week following Easter. The South African shipments of fruit are drawing to a close and now consist mainly of Grapes and Pears. Australasian Apples are selling slowly and there are still ample stocks of American Apples available. Some early English Muscat Grapes are coming to hand and are meeting with a fairly steady demand. Strawberries are more plentiful and selling at slightly lower rates Forced Beans, after a few slumpy days, have an improving tendency, and forced Potatos are maintaining their high value. Peas from Guernsey are selling slowly. Forced Asparagus is extremely low in price and in many instances arriving out of condition. A sprinkling of Asparagus from the Evesham district is arriving but there is no decrease in the demand. Prices for Cauliflowers and green vegetables have fallen very much. English Tomatos are of a better quality both from the Lea Valley and Worthing growers. Guernsey Tomatos are also contributing to this section. Cucumbers, after a period of congestion, are now selling better although the quantities marketed are still large. New Potatos from the Canaries are moving upwards in price on reports of much reduced shipments. Old Potatos have sharply advanced in value and quotations are comparatively high.

Communications Received.—J. W.—A. B.—E. N. J. R.—J. C. McL.—W. E. T.—T. A.—B. R. W.—W J. B.—J. G. W.—A. G.—J. P.—G. H. H.—C. R.

Supplement to The GARDENERS' CHRONICLE.


Gardchron
J.W.

ANEMONE FULGENS.

THE

Gardeners' Chronicle

No. 1950—*SATURDAY, MAY* 10, 1924.

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SUPPLEMENTARY ILLUSTRATION.

Anemone fulgens.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 53·0.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street Covent Garden, London, Wednesday, May 7, 10 a.m.: Bar 29.7°; temp. 48°. Weather, Showery

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Orchards Beautiful.

THE old orchards attached to farmsteads in the West of England have often been severely criticised, and judged by the standard of modern commercial fruit culture much of the criticism is justified. At the same time it must be remembered that these old orchards are reminders of the early history of British fruit culture. They belong to the period before commercialism had entered into fruit growing, and trees were planted and orchards established mainly, if not entirely, to produce Apples and Pears for the making of cider and perry. Few of these old trees were propagated in a nursery. For the most part they were seedlings raised from pips thrown out with the pomace from the cider mill, christened with quaint local names of places or persons, and the way of increasing any special favourite was to graft it on to a wild stock planted in the orchards for the purpose. There is evidence of grafting on trees which have been growing for more than a century, and on stems having a girth like that of a forest tree one may observe the ring and swelling which mark the point where the scion was united to the stock by the process which Shakespeare describes in language redolent of the atmosphere of orchards round about Stratford-on-Avon. In those early pre-commercial days of fruit culture, judging from old books, there were marked contrasts in management, for whereas the orchard trees were left to grow very much as nature wished, Apple and Pear trees in "The Manor" garden were trained and pruned into stiff, fantastic shapes by old gardeners who were looked upon as wizards. Yet, of the two, the farmers who knew nothing about pruning, and cared less, were the wiser, because if commercial fruit growers of to-day were to mutilate their trees after the manner of the old gardeners they would soon be well on the way to bankruptcy. Since fruit growing became a business many old fallacies about pruning have been exploded, and some good lessons have been learned from the free-growing and heavy-bearing habits of orchard trees. However, we do not desire to be controversial in this note, but rather to depict the old orchard beautiful, as it doubtless is when every tree is clothed with living blossom. Many a farm orchard in the Western counties contains half as many varieties as there are trees, much too closely planted as a rule, and there may be nothing to indicate that the trees were ever planted in regular rows. The explanation is that one occupant of the orchard after another had a fancy for a Pear or an Apple and put trees in amongst the rest without giving a thought to the space they would require when fully developed. The stems of many of the trees are moss covered; Mistleto flourishes in their branches; some are straight, others lean this way or that, and others again lie flat on the ground having been blown down by a gale, but without being entirely uprooted, and they have gone on growing and bearing. The orchard beautiful starts with the Pears, and never have the trees presented a more charming picture than at the moment of writing. For some unexplained reason perry Pears are found mostly in Gloucester, Hereford and Worcester, and rarely in Somerset or Devon, and as compared with Apples, the varieties are strictly limited. Curiously enough, too, the place of their origin can mostly be traced from their names, as for instance, the Norton Butt, which originated in a village of that name near Gloucester, a variety which has a distinct, graceful habit of growth; the Taynton Squash, after the Gloucestershire village of Taynton; and Malvern Hill, the origin of which is suggested by the name. The names of Huffcap and Oldfield, which make the most delicious perry, are more obscure, but the well-known Barland is a corruption of Bare-lands, the name of the farm in Herefordshire where the first tree is supposed to have grown. One of the most gigantic of West country Pear trees is the Blakeney Red, named after the village Blakeney, on the edge of the Forest of Dean and in the vale of the Severn not far from the riverside hamlet of Gatcombe, where tradition says that Sir Francis Drake once lived. Blakeney Red is not considered to be one of the best of perry Pears, but it has rather a tempting appearance, somewhat resembling the colour of a Louise Bonne of Jersey. In some seasons it finds its way into markets—in fact one year during the war some small fortunes were made out of Blakeney Reds. Amongst fruit dealers the Pears are still referred to as "one bites," the explanation being that consumers, tempted by the colour, bought Blakeney Reds, took one bite, and threw the remainder away. A smallholder on the borders of the Dean Forest explained quite recently that he could do no good with "they old Blakeneys," so nearly twenty years ago he headed them and grafted the thick limbs with scions given him by a local gardener. He has never repented it because, curiously enough, the Pears turned out to be Doyenné du Comice — whether the gardener was aware of this does not appear, but certainly the smallholder was not. Thus the trees have been a source of steady revenue for years. It is a strange union, that of the best of all dessert Pears with the common Blakeney Red or "one bite," but the conditions are mutually agreeable judging by the way Doyenné du Comice has grown and the perfect flavour of the fruit produced. As already mentioned, for some unexplained reason hardly a blossom appeared on the perry Pears last season, but this year they are wreathed with white flowers and many an ornamental tree in the grounds of a mansion is not nearly so beautiful. Already the farmers concerned are beginning to estimate how many hogsheads of perry they will make, and, as one of them put it, "Apples be all very well, but Pears be the things to run the juice," and readers would agree if they saw the liquor running out of the press when the Pear pulp is being squeezed. These old perry Pears seem impervious to diseases and insect pests and when trees die it is through sheer old age. When the fruit falls in the autumn it lies thickly on the grass and ofttimes upwards of a ton is picked up from under one great tree. It seems a pity that more perry Pears are not propagated or planted, seeing the revival there is in the public taste for good perry and the desire that the taste for this wholesome beverage should be cultivated outside the counties where the perry Pears grow. The season of floral beauty of the Pear trees in the old orchards passes, and the white petals flicker to the ground, but in the meantime the Apples, which are naturally later, come forward, and the next picture of blossom, which is equally charming, is tinged with a shade of delicate pink which comes and goes until the latest of the Apples have finished their flowering, well into June.

Our Supplementary Plate.—With the present issue we present our readers with a supplementary illustration in which is presented an artistic arrangement of flowers of the charming Anemone fulgens. This fine species is variable, but is best represented in gardens by its rich scarlet form, whereas the market growers pay most attention to the brilliant double variety. A group of Anemone fulgens in full bloom is a splendid sight on a bright sunny day, and sunshine is necessary to bring out the brilliance of the gorgeous colouring. But even so, the full glory of Anemone fulgens is seen only under brighter skies than ours. The late Mr. Reginald Farrer wrote: "A. fulgens we shall never see in its real fulness. For this is the Red of all red Anemones from the Levant, which ousts even Coronaria from the throne of King of the Scarlets. The species is most variable; we grow its pretty dwarf lilac-starred variety called A. fulgens stellata (often simply A. stellata in catalogues) with ease and success in warm dry borders and rock gardens; we cope successfully with the other varieties, A. hortensis and A. pavonina; but A. fulgens type, as its ardent many-rayed suns of scarlet dazzle the wide fields of Greece and Asia Minor, is too hot and blazing and intemperate a glory for climates so mild and respectable as ours."

The World's Timber Supplies.—The official record published by the United States Department of Agriculture, 1923, states that the growth of timber in the entire world is equal only to two-thirds of the amount consumed. Evidently, therefore, the world's timber supply is a rapidly diminishing asset.

Leonardslee Gardens.—An opportunity will be available to the public to inspect the gardens at Leonardslee, Horsham, on the 24th, 29th and 31st inst., when Lady Loder will open her beautiful gardens on behalf of the Sussex hospitals. These will be the only days on which the public will be admitted and the admission fee is 1s. Tea will be available and all the proceeds will be given to the hospitals.

Plea for Justice to Scottish Woodlands.—A remarkable demonstration of the possibilities that lie ahead of the wooden house as an effective and practical method of helping to solve this country's housing difficulty was given recently at Spey Bay, Morayshire, when members of the Moray and Nairn Foresters' Society inspected a specimen type of wooden house just completed by Mr. T. B. Jones, of the firm of Messrs. James Jones and Sons, Ltd., Larbert. The company numbered about eighty, and under the guidance of Mr. Jones, made a minute inspection of the wooden residence named Larch House. It is built throughout of home-produced timber, while the furnishings within are also made of the home product. The house contains a large lounge-room, dining-room and two bedrooms, with kitchen, scullery, pantry and bathroom accommodation on the ground floor, and two bedrooms upstairs. A verandah has been erected on three sides facing the sea. The roofing, which one might easily mistake for English tiles, is made of Spruce blocks treated with red lead and linseed oil. In the course of the proceedings Mr. Jones said he wished to bring to the notice of the Scottish backwoodsmen present a few ideas which might help to bring about the greatly needed "soul's awakening" of Britain. Although neither the Scottish foresters nor the home timber trade were represented in Parliament, all political parties were now beginning to realise that they represented something strong, virile, and independent in the land. For the sake of brevity and clearness he classified his ideas on the subject under six heads. (1) Let them impress upon the Government, Army, Navy and Air Forces, municipal authorities, railways, collieries, shipbuilders, foundries, and the man in the street, that in all specifications for timber they should invariably ask for prices in home timber as well as foreign. (2) Impress upon the people the fact that Scottish timber was second to none. (3) To prove by demonstration that Scottish Larch was better than English and superior to Irish, and that all three were superior to the Continental Larch. That Scottish Beech and Plane trees were the hardest grown in the United Kingdom, and that the Scots Fir has no compeer. (4) To insist that the Larch, as grown in Scotland, was the finest Coniferous timber for weather boarding. (5) To urge that the burning of brush should cease, and an endeavour made to create a firewood market. (6) To urge that it is to the national advantage and is the inherent right of every acre of natural woodland to have the opportunity of growing a crop of timber. Mr. Jones concluded by saying all that the Government could do, and all that private individuals could do, was needed to give justice to Scottish woodlands. Mr. George Clark, head forester, Gordon Castle, in moving a vote of thanks to Mr. Jones for his hospitality, said it would be a good thing if other timber merchants would follow the example set by their host. If they did, the utilisation of waste land and the replanting of recently cut areas would soon be in view, and great tracts of woodland would grow up. These would be sorely needed by future generations for the erection of ideal homesteads such as they had seen that day. Mr. Feaks, head forester, Darnaway Castle, the president of the society, also spoke appreciatively of all the members had been shown on their visit to Spey Bay.

DR. J. BURTT DAVY.

Dr. J. Burtt Davy.—It is with great pleasure we learn that the University of Cambridge has conferred the degree of Doctor of Philosophy on Mr. Joseph Burtt Davy, F.L.S., F.R.G.S., formerly Chief of the Division of Botany and Government Botanist to the Union of South Africa. Dr. Burtt Davy is an old Kewite, having entered Kew in 1891 as a Technical Assistant, obtaining the post by competitive examination. The sedentary life and enervating climate proved unsuited to his health, and he was advised to seek a drier climate overseas, he, therefore, resigned in 1892, and went out to California. Here he obtained a Student Assistantship in the Department of Botany of the University of California, and took a course in Agriculture under Prof. E. W. Hilgard, the famous soil chemist. Later, he became Instructor in Botany, and in 1902 was appointed Assistant Curator of the Herbarium, United States Department of Agriculture, Washington. At the close of the Boer War, Lord Milner established a Department of Agriculture in the Transvaal, and Dr. Burtt Davy was invited to organise its Division of Botany, being appointed Government Botanist and Chief of the Division. There being, at that time, no reference collection of botanical specimens in the Transvaal, he began the formation of a departmental herbarium, for which he collected some 15,000 numbers; these have formed the nucleus of the present National Herbarium. In 1917, he outlined and published a plan for a Botanical Survey of the Union. He devoted a good deal of attention to introduction of plants likely to prove useful in the new colony, especially Maize, now the staple crop of the country; the best varieties of American Uplands Cotton, and Teff-grass. Of the latter, recent agricultural census returns show some 250,000 acres under crop in the Union. In 1913, Dr. Burtt Davy issued, through Messrs. Longmans and Co., a book on *Maize, its History, Cultivation, Handling, and Uses*, which is already out of print. Dr. Burtt Davy is now working at Kew on the completion of his *Handbook to the Flora of the Transvaal and Swaziland*.

Studley Horticultural College.—Owing to ill-health Miss Hamilton, M.D., has resigned her position as Warden, and the Governors of the College have appointed as Principal, Miss Ekins, B.Sc., N.D.H., who has been Acting-Warden since August, 1922.

Weed Killers.—Experiments in weed killing, both on arable land and on paths, etc., recorded by Mr. Schribaux, appear to show that one of the most useful weed killers for arable land is ammonium chlorate. In the report of Mr. Schribaux's work given by the *International Review of the Science and Practice of Agriculture*, it is stated that an amount equal to seven pounds per acre suffices—no doubt put on as a spray—to kill the weeds in spring Corn and that treble that quantity does no harm to the Corn. It is recommended to combine the ammonium chlorate with nitrate of soda and to apply it in April, May or early June. The large scale tests made with ammonium chlorate on nearly five hundred acres of Oats and other cereals appear to demonstrate the superiority of the weed-killing powers of this substance over others commonly employed—such as of sulphuric acid and copper nitrate. Common (denatured) salt used in a twenty per cent. by weight solution also gives good results, killing nearly ninety per cent. of troublesome weeds without injuring the Corn. With salt sprayings at the end of winter or beginning of spring wild Radish and Charlock were completely destroyed and the tops of Bindweed, Vetches, Clovers, Buttercups and Chicory effectively scorched. For clearing paths, etc., of weeds, a two per cent. solution of sodium chlorate is recommended. It should be used at the rate of two hundredweights of solution per acre.

Electricity and the Variation of Plants.—Starting with the idea that it might be possible to induce change in the germ plasm before fertilization, Messrs. Ragionieri and Meunissier* proceeded to test the validity of their conjecture by subjecting pollen grains to electricity obtained in various ways. They applied current of high frequency and also subjected pollen grains to X Rays, ultra-violet rays and radio-active emanations. The results which they claim to have obtained are remarkable—so remarkable, indeed, that they will require careful confirmation before they may be generally accepted. Among other changes which are said to have occurred as the result of electrification of pollen grains, subsequently used for pollination, are the converse of the Pumpkin (Cucurbita Pepo var. cucurbitella) from the dioecious state into one in which it bore male and female flowers on the same plant and even produced bi-sexual flowers. Even more wonderful are the changes said to have been induced by these means in a wild plant of Althaea rosea. Subjected to pollen electrification the progeny of the plant was changed in habit and size, colour, shape and arrangement of flower characteristic of the species, and assumed the appearance of Hibiscus syriacus. The changes induced are also said to be inherited by the descendants of the electro-mutated plants. The cautious, whilst not venturing to deny these statements, will certainly not accept them until they have had opportunity of studying the evidence more thoroughly than is possible at present.

Appointments for the Ensuing Week.—Monday, May 12: Bath Gardeners' Society's meeting; United Horticultural Benefit and Provident Society's meeting. Tuesday, May 13: National Tulip Society's Show in conjunction with the meeting of the Royal Horticultural Society's Committee (2 days); Royal English Arboricultural Society's meeting; Jersey Gardeners' Society's meeting. Wednesday, May 14: Morley and District Paxton Society's meeting; East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting.

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* Reprinted in *Revue Horticole*, p. 334, 1923.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Horticultural Society of London's Exhibition at Chiswick.*—It is of no small moment that exhibitions of this kind should receive all the support that the public can give them. There was not a person at Chiswick on Saturday (May 5) that was not, or might not at some future time become, the possessor of a garden. No one there could be otherwise than interested in studying the highest known standard of excellence in this necessary luxury. And everyone must have felt that no gardener could be there who would not go away with his intelligence advanced, and his emulation excited by the admirable productions of his brethern. This would be the more felt if it were known to everybody, as well as to ourselves, how apparently inadequate to great results are the means possessed by several of the best exhibitors; and that the finest of the plants in some cases came, not from great conservatories and palatial establishments, but from places whose maintenance is not beyond the means of many shopkeepers. If that were known, the remarkable skill which works out such great results with modest means would be better appreciated than it is. *Gard. Chron., May 12, 1849.*

Publications Received.—*Year Book of Pharmacy and Transactions of the British Pharmaceutical Conference,* 1923. The Pharmaceutical Press, 17, Bloomsbury Square, W.C. *The Flora of the Malay Peninsula.* By H. N. Ridley. Vol. III. L. Reeve and Co., Ltd., 6, Henrietta Street, Covent Garden, W.C. 2. Price £2 2s. *The Annual Report of the Kirton Agricultural Institute,* 1923. The Agricultural Institute, Kirton. Price 1s.

ALPINE RHODODENDRONS AT HEADFORT.

At the Spring Show of the Royal Horticultural Society of Ireland held in Dublin on April 9th, the Marquis of Headfort, President of the Society, showed a group of Alpine Rhododendrons grown at Headfort, Kells, Co. Meath, from seeds sent home in 1922 by Mr. Forrest and Mr. Kingdon Ward.

A short description of eight of these delightful little plants will be of interest to those who also received seeds from these collectors, and to those gardeners who want dwarf alpine plants of great charm and interest for a rock garden or peat bed. The seeds were sown on April 24, 1922, in boxes, in fine sandy soil and germinated under glass. The seedlings were pricked out into larger boxes and kept in a frame, and came into flower in March, 1924, less than two years from the time the seeds were sown.

K. W., No. 3,998.—A dwarf plant, flowering under 6 inches high, flowers smaller and more tubular than those of the R. racemosum type; leaves more linear, ¼-inch broad, 1¼-inch long, dark green above, pale golden-yellow underneath. Flowers in small, terminal heads, perhaps a raceme; pink in the bud, opening soft pink; sweetly scented.

F., No. 20,484.—Distinctly of the racemosum type but much dwarfer than R. racemosum as generally known. Plants 5 inches high, closely branched, carrying three to four large trusses of flowers which are not so markedly terminal as in the species mentioned above. Leaves 1 inch long, ½-inch broad, obovate, dark green above, silver underneath with tiny dark glands. Flowers clear pink, fading to paler pink. This promises to be a most useful, free-growing, dwarf, compact, Alpine Rhododendron.

K. W., No. 3,952, R. mollicomum.—One of the racemosum series, but abundantly distinct. The whole plant, stems and leaves, is covered with minute hairs, giving it a grey appearance. Leaves dark, shiny green above, lighter below, 1 to 1½ inch long, lanceolate. The golden brown stipules which show as the young growths open are remarkable. Flowers in axillary trusses, crowded together, making an elongated group in the young plants, 3 to 4 inches long. Pedicles pink, 1 inch long; corolla flattened, well expanded, rose-pink in the bud, opening to soft pink, and fading to almost white. The perfume is like that of the wild Primrose. An attractive and distinct plant, for which one can predict a future of great popularity.

F. No. 19,404.—Plants 6 to 9 inches high, covered with flowers in axillary groups, 3 to 4 inches long, at the end of the stems. Leaves distinctly resembling those of R. racemosum, but rounder at the apex, 1 inch long, two-thirds inch broad, thick and firm in texture, bronze-green above, silver underneath, with dark glandular scales. The young stems are a lively pink. The flowers when first open are a uniform rosy-pink, large for the size of the plant, fading to a softer shade. Another useful and distinct addition to the newer Rhododendrons.

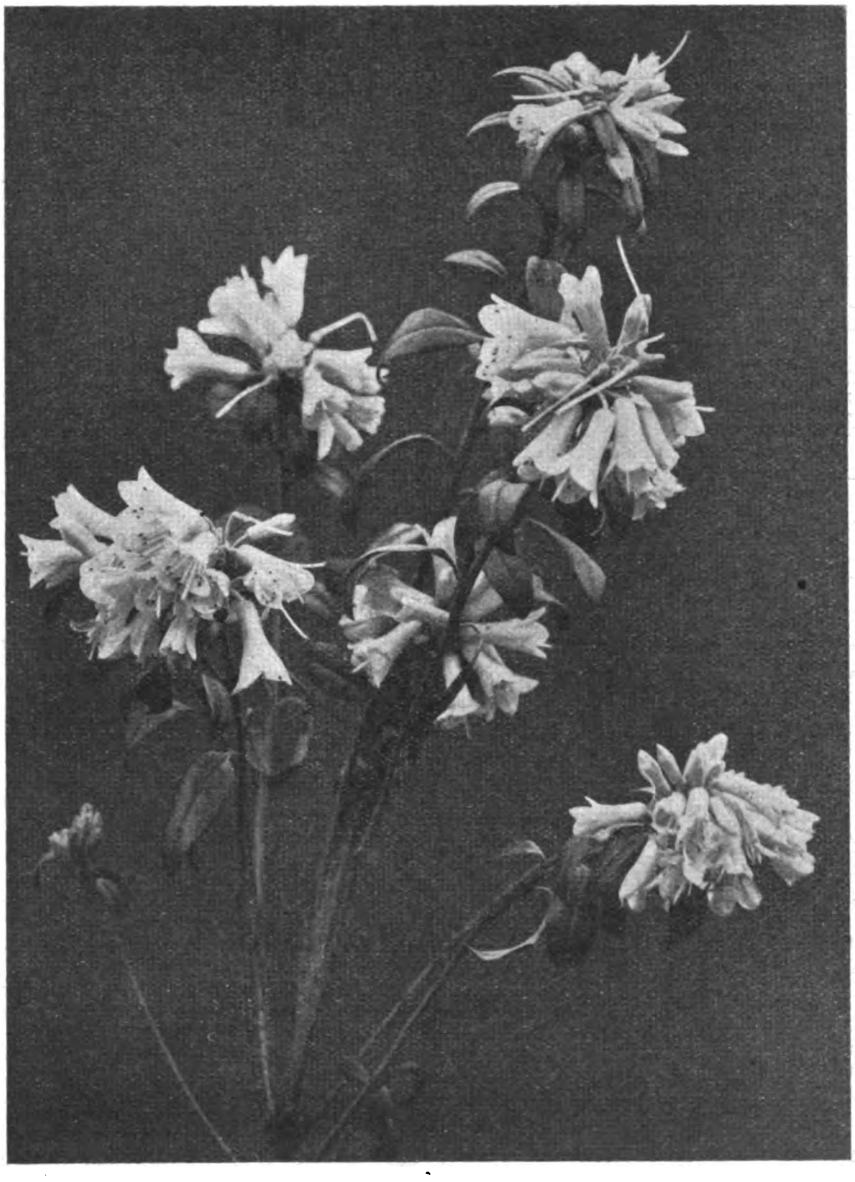

FIG. 111.—RHODODENDRON BRACHYDUM PRIMUM (R. BRACHYANTHUM × R. FLAVIDUM).
R.H.S. AWARD OF MERIT, APRIL 29 (SEE P. 262).

K. W., No. 4,023.—Flowering from 6 to 7 inches high. Leaves ovate-lanceolate, dark olive-green above, covered with silvery glands, grey underneath with dark glands. Loose terminal heads of Primrose-yellow flowers.

K. W., No. 4,456.—A delightful little plant flowering when 4 to 5 inches high; much branched from the base. Flowers in comparatively large terminal heads, violet-blue in colour, ½-inch across, quite large for the type of plant. Filaments pink in freshly opened flowers. Leaves ¾-inch long, shining green above and below; acuminate. This is one of the most distinct of the group.

F., No. 20,488.—This is quite distinct from K. W., No. 4,456, and apparently a rather larger plant in every respect except size of flowers. The leaves are longer, dull olive-green above, paler underneath. Young stems golden. Both leaves and stems are covered with small golden scale hairs. The flowers are a paler blue in colour than those of K. W., 4,456, and not so compact in the truss.

K. W., No. 5,001, R. scabrifolia.—The giant of the group, 12 inches high, freely branched, each branch terminated with clusters of flowers that are soft pink in the bud stage, opening almost pure white. The flat flowers are ¾-inch across, on long, green, hirsute pedicles covered with colourless glandular hairs. Leaves soft, large, 2 inches long, pale green on both surfaces and very distinctly hirsute. This is the only white-flowered plant now open in the group.

It is a triumph of cultivation to have brought these Rhododendrons into flower in less than two years, and to Mr. W. Trevithick's skill and care this achievement is due. The group well deserved the Large Gold Medal awarded it by the Council of the Royal Horticultural Society of Ireland. *W. P. Moore, Dublin.*

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

Phaius.—Both species and hybrids of this genus are well worthy of cultivation. The species most frequently grown are P. Bernaysii, P. Sanderianus, P. grandifolius, P. tuberculosus, and P. simulans, whilst the hybrids P. Norman, P. Cooksonii, and P. Phoebe are the most generally included in collections. These plants bloom at different periods of the year, so that they will not all need re-potting at the same time. This operation is best done soon after the flower-spikes have been removed and when new roots begin to develop from the base of the young growths. The various members of Phaius are strong-rooted plants, therefore they should be afforded a retentive compost consisting of good fibrous loam, from which the dusty particles have been shaken out, Al fibre, Sphagnum-moss in a lumpy condition, and sufficient crushed crocks to render the mixture porous. The pots should be well drained, as liberal supplies of moisture are necessary during the plant's season of active growth; when the season's growth is completed only sufficient water is needed to keep the soil moist. The plants are best grown in an intermediate temperature and placed in a position where they will receive plenty of fresh air without being subjected to draughts. Usually there is little difficulty in growing the hybrids, but the species often do not respond readily to cultivation. The species P. tuberculosus and P. simulans are benefited by a slightly warmer temperature. The latter is most frequently grown in pans and afforded a less retentive compost than the others mentioned.

Sophronitis grandiflora.—This brilliant cool-house Orchid has been blooming for some time past. The flowers are produced from the partly-developed pseudo-bulbs; some of the plants are still in flower and others have passed that stage. It is a mistake to leave the flowers on the plants for too long, especially on weak specimens. If re-potting is necessary, it is best done as the plants pass out of bloom. Shallow Orchid pans without side holes are the most suitable receptacles, and they should be suspended from the roof rafters. Provide plenty of drainage and employ Osmunda-fibre as a rooting medium. Cut the material into rather fine portions, as when used in too rough a condition it is apt to retain moisture for too long a time, which is detrimental to the well-being of this Orchid When the plants are well rooted in the fresh compost they should be kept sufficiently moist at all times to maintain the Sphagnum-moss in a green and healthy condition. The plants should be shaded from bright sunshine, but exposed to all the light possible during the winter. Water should not be allowed to lodge in the centres of the young growths, as this would cause them to decay.

Dwarf Odontoglossums.—Other dwarf-growing Orchids that have recently passed their flowering period are Odontoglossum Rossii, O. Cervantesii, O. Humeanum and O. Oerstedii. These plants should now be afforded a short period of rest; suspend them close to the roof glass, and give them just sufficient water at their roots to prevent the pseudo-bulbs from shrivelling. Odontoglossum Uro-Skinneri is developing new roots from the base of the young shoots, and any specimens of this orchid needing fresh rooting materials should receive attention at this period.

THE FLOWER GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Sunflowers.—These stately annuals are well worth growing but need spacious positions at the back of large borders. They do not bear transplanting and should be sown in their flowering positions now in soil which has been well prepared and received liberal treatment.

Tree Paeonies.—Although these beautiful plants are perfectly hardy, their earliness of flowering renders them liable to injury by late spring frosts, and it is wise to grow them in positions where natural shelter is afforded, or where temporary shelter may easily be arranged. Well grown plants sometimes attain a height of four or five feet with an equal diameter. Such specimens are objects of great beauty when in flower and are worth protecting with canvas screens.

Hollyhocks.—Plants of Hollyhock raised from seed sown early in the year are growing vigorously and should not be allowed to become pot-bound. Shift them into larger pots as becomes necessary and grow them on in buoyant atmospheric conditions, gradually preparing them for planting out next month.

Pansies.—Seeds of Pansies may be sown in boxes of light soil and placed in a cold frame. Prick off and grow on the seedlings in a cold frame until they are large enough to plant out. When grown for summer and autumn display they should be afforded a partially shaded position and a rich soil.

Herbaceous Borders.—Keep the surface soil constantly stirred to prevent the growth of weeds and promote aeration of the soil which is so conducive to healthy growth. Watch the plants as growth proceeds and thin strong, vigorous clumps drastically, leaving only a sufficient number of shoots that have room for full development. It needs courage to thus thin in the early stages of growth, and even the practised person is apt to flinch, but the results will amply justify the procedure.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Melons in Frames.—The present is a suitable time to commence the cultivation of Melons in pits or frames. Where it is possible to obtain fermenting materials such as Oak or Beech leaves and fresh stable manure, these should be mixed well to form a hot-bed; without bottom heat much will depend on the season in obtaining a successful crop. I have seen excellent fruits grown in cold frames, when we have been favoured with a long spell of sunshine. By closing the frame early in the afternoon to raise the temperature to 90° or even more, plants raised from seeds sown now should produce ripe fruits by the first week in August. The time generally required to produce ripe Melons in heated pits is from twelve to fourteen weeks, but here again much will depend on outside conditions. Assuming that fermenting materials are available they should be well mixed and the heap turned at least twice before making the bed. The seeds should be sown in small pots filled with an open compost which should not be made too firm, placing the seeds near the side of the receptacle rather than in the centre. Place the receptacles in a box filled with moist material, cover the box with a sheet of glass and stand it over the hot-water pipes (this of course will apply to the small grower who has to raise his plants under difficulties). Melon seeds soon germinate at this season of the year, therefore it will be necessary to make every preparation for setting out the plants, which should never be allowed to receive a check through becoming pot-bound and starved. The most suitable compost for Melons is good, strong, turfy loam, mixed with old mortar rubble, bone meal, burnt ash from the garden fire and charcoal. The soil should be prepared some time before it is required to make the bed. The compost should be placed under cover to keep it dry, as when used it should be consolidated by ramming, for Melons delight in a firm rooting-medium. In placing the soil on the beds arrange it in slight mounds from 5 inches to 7 inches high, as Melons should be planted well above the line of watering or the plants will be liable to canker at the base and die off. Melons revel in plenty of sunshine and atmospheric moisture, therefore the frames should be closed early, and the plants syringed with tepid water. The lights should be covered with a mat at night during the plant's early stage of growth.

PLANTS UNDER GLASS.

By F. J. CLARK, Gardener to Lt.-Col. SIR GEORGE HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Carnations.—Young plants of perpetual-flowering Carnations, which were transferred to 3-inch pots, as advised in a former calendar, should, if not already done, be shifted into 5-inch pots forthwith. The compost for this potting should contain a larger proportion of loam than that used at the last shift. A liberal addition of crushed mortar rubble, some fine oyster shell and a 3-inch potful of Carnation manure to each barrowful of soil should also be added. A cold pit or frame in a sunny position will be a suitable place for the plants now that the weather is warmer. The frames should be kept closed for a few days and the plants shaded from bright sun until they are well established in their new pots.

Souvenir de la Malmaison Carnations.—These plants will need close attention now in the matter of disbudding, staking, feeding and watering. Each flower stem should be supported by a thin stake, and all flowers but the terminal or crown bud removed so soon as they can be safely detached. Feed the plants with soot water, weak liquid manure, or with an approved Carnation manure. Allow a free ventilation of air both night and day, guard against attacks of aphis by fumigating the plants with XL All insecticide, and, as the flowers open, lower the sun blinds in bright weather to prevent the flowers from being scalded or blanched.

HARDY FRUIT GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Raspberries.—If not already done, place a liberal mulching of half-decayed manure along the Raspberry rows; the spring rains will wash the nutriment down to the roots. Weeds should be pulled up by hand, as the Raspberry is more or less surface-rooting and hoeing would be likely to damage the young roots. As growth progresses it may appear that some of the canes are still too close to one another; if so, cut out the weaker ones. A distance of ten inches or a foot is not too much, especially in the case of strong-growing varieties such as Lloyd George and The Devon. Suckers that are coming up in the alleys between the rows should be dug out, not pulled up, or they would probably break off and another crop appear later. Retain the best shoots that come up close to the base of the canes and dig up all the others. Autumn-fruiting varieties such as Queen Alexandra and November Abundance should be cut down, as they fruit on the current season's growths. Keep the young canes thinned and tied as they develop. Given a fine autumn these Raspberries make a welcome addition to the dessert fruits, the berries being large and well flavoured.

Gooseberries.—To produce extra fine Gooseberries for dessert or show purposes the plants should be grown as cordons, and the growths kept well thinned to allow the air to circulate freely among the bushes. Good soil well cultivated is essential to success, and the grower should feed the roots judiciously. Mulch the surface of the ground before hot weather arrives, as Gooseberries delight in a moist, rich soil. Thin the berries so soon as the best fruits can be determined, and also the growth about them in order that the sun's rays will reach the crop. In dry weather, and as the fruits are swelling fast, the soil about the plants should be kept damp by spraying twice a day with water, or even on more occasions if possible, otherwise the skins will crack just as the berries are ripening. The crop should be protected from birds by placing fish netting over the bushes.

The Fruit Room.—Apples and other fruits in store will soon be finished and advantage should be taken of wet days to cleanse the fruit room thoroughly. All loose racks and fruit trays should be taken outside and scrubbed with hot soft soapy water. The walls should be whitewashed if they are of brick or scrubbed down if of wood. Modern fruit rooms are mostly thatched with Norfolk reeds or straw to maintain an even temperature, which is essential to the proper keeping of choice fruits. Where the thatch requires repairing the work should be done now.

THE KITCHEN GARDEN.

By WALTER Y. STAWARD, Gardener to MRS. JOHN FEENEY, The Moat, Berkswell, Warwickshire.

Celery.—The earliest Celery plants are ready for placing in the trenches, which may be made to take two, four or six rows each, but two lines are easiest to manage. The trenches may be made 18 inches wide and 3½ feet apart. Place plenty of well-decayed manure in the trench and well mix the dung with the soil. Should the ground be dry at the time of planting, give the soil another good soaking of water before transferring the latter to the trenches.

Cauliflowers.—Plants that were pricked off some time ago are ready to set out in their permanent quarters. The earliest varieties do not require so much space between the rows as the later sorts. Examine every plant carefully for club root before planting it and burn any that are infected.

Cabbage.—Another bed of Early Cabbage should be planted to form a succession. Spring-sown plants grow quicker than those that have been wintered in the open.

Gourds.—Gourds may be sown now, placing one seed in a three-inch pot, and in the case of the smaller varieties, three seeds in a pot. The fruits of the ornamental varieties will, if preserved in the autumn, keep for many months.

Tomatos.—Plants intended for cropping in the open should be exposed to the full sunshine and air to harden them. In favoured districts where late frosts are not feared, Tomatos may now be planted out-of-doors in their growing quarters.

Peas and Dwarf Beans.—Make further sowings of Peas for successional cropping. Dwarf French Beans may also be sown on a south border, where the plants will receive shelter from a wall. Allow plenty of room between the plants.

Turnips.—Further sowings of Turnips may be made, also Swedes, which keep well and are very useful during the winter.

Leeks.—Leeks intended for exhibiting should be placed forthwith in single rows in the trenches. Plenty of well-decayed manure should be incorporated with the soil.

ALPINE GARDEN.

SYMPHYANDRA PENDULA.

THE value of this plant is increased by the fact that it blooms comparatively late in the season, generally beginning in July or August and lasting for a considerable time in flower, especially if not planted in full sun.

In full sun the flowers appear to fade more quickly after a shower than when the plant is grown in partial shade. It may be cultivated in a border, but this is not an ideal position for this Symphyandra, as its pendent habit is best suited to the rock garden, where, if placed in a fairly high situation it is much more attractive than on the level. The late Mr. Reginald Farrer, who wrote of it with the greatest enthusiasm, advocated planting it at about the level of the eye, so that its uniquely attractively coloured flowers might be better seen hanging over a stone. But this is, in my estimation, too high up, as then the pleasing, glossy leaves cannot be so well seen, and these in themselves are an unimportant feature of this plant. As the name would suggest it is of pendent habit, the flowers, which are numerous on branched stems, being sufficiently heavy to bear down the stems and hang prettily over the rocks. They are handsome, long bell-shaped flowers of a tone of colour almost baffling description so as to convey any meaning to the reader. They may be described as yellow-white, suffused all over with a lovely green, yet without the dullness such a description would convey. Slugs injured my plants badly in spring. It seems hardy, a true perennial, and ease to raise from seeds. I find it does best on a half-shaded ledge of the rock garden, protected from all but the early morning sun. *S. Arnott*

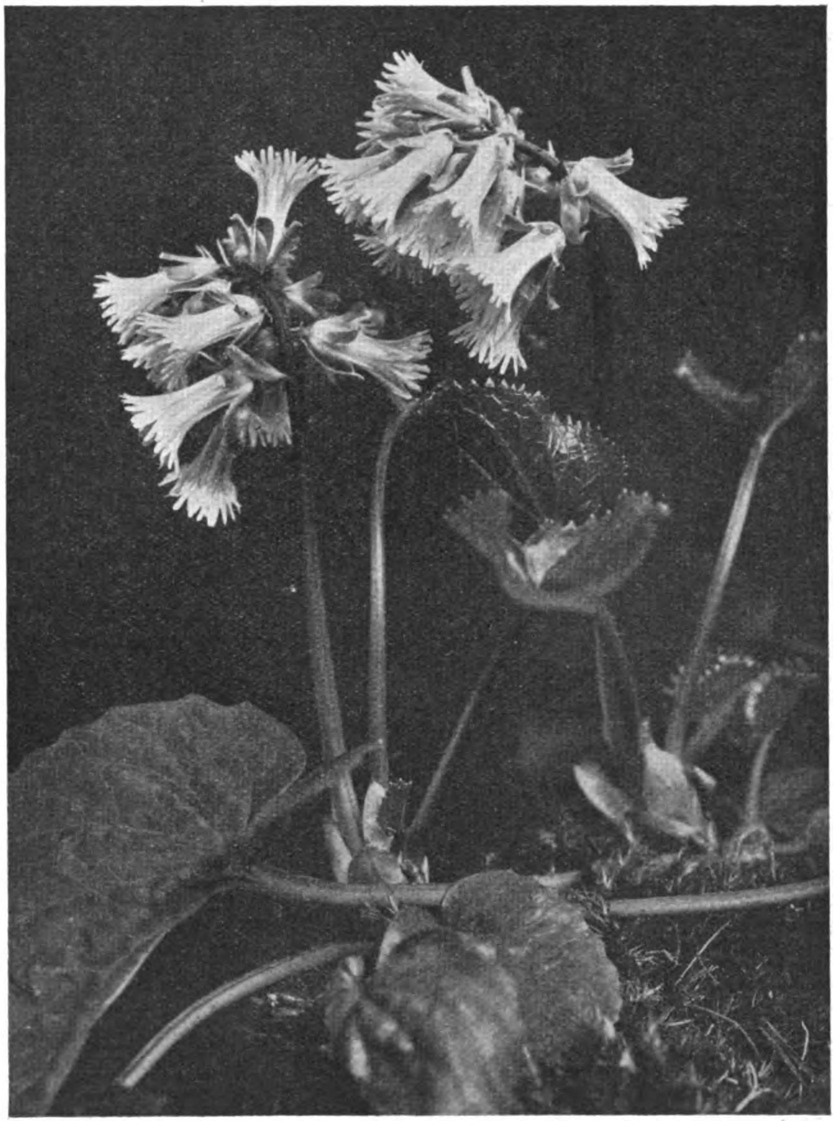

FIG. 112.—SCHIZOCODON MACROPHYLLA. R.H.S. AWARD OF MERIT, APRIL 29 (SEE P. 262).

SPIRAEA PECTINATA.

THIS plant, which is also known as Eriogynia pectinata, is an engaging little subject with a close resemblance to a Mossy Saxifrage. It is useful for associating with Gaultherias and similar subjects which enjoy a cool, vegetable soil that does not dry-out in summer, and partial shade.

S. pectinata makes a loose cushion of its glossy-green, finely-cut foliage, and from this it sends out runners which root and form further tufts, or rosettes. The flower stems develop about four inches or more in summer and bear dainty plumes of white blossoms.

If not one of the choicer species of a genus so rich in good things, S. pectinata belongs to a class of woodland plants which possess a peculiar charm and which are indispensable in their particular sphere. *J.*

EDINBURGH BOTANIC GARDEN NOTES.

The alpine house at Edinburgh is one of the most attractive features of the garden, especially in early spring. It is span-roofed, with a wide, central, stone-flagged pathway, and terraced borders on each side of the path. A few of the more showy subjects now flowering on this indoor rockery include Arctostaphylos Stanfordiana, a round bush three feet high with grey-green foliage and clusters of white, urn-shaped flowers; Celmisia viscosa, one of the Mountain Daisies of New Zealand, each growth with six or seven buds or expanded, narrow-petalled, glistening, white flowers; Ourisia macrocarpa, the pink blossoms in tiers fifteen inches high; Oxalis oregana superba with wide, flat, rosy-pink flowers; Rhododendron serpyllifolium and the crimson-flowered R. Hinodigeri.

Androsace sarmentosa forms a spreading mat of silvery rosettes, with heads of bright rose-coloured flowers. The clear, blue flowers of Omphalodes cornifolia and O. Pritchardii are conspicuous, as also is Romanzoffia Suksdorfii, a dwarf, sub-Arctic herb, with green, fleshy foliage and loose heads of white flowers. Daphne retusa, Primula Ellisiae Ptilotrichum Reverchoni, Lithospermum oleaefolium and Aethionema creticum are also flowering.

On the outdoor rock garden, the purple-flowered Draba pyreniaca, and the bright, mustard-coloured D. Sauteri are particularly fine. Other species of Draba flowering include D. siliquosa, D. rigida, D. laxa, D. bruniaefolia, D. Loiseleurii, D. Athoa, D. chionaea, D. olympica, D. borealis, and D. altaica. Extensive drifts of Saxifraga apiculata, S. sancta, and S. Elizabethae, carpet the ground, and the innumerable yellow flowers light up the weathered rock with superb effect. S. Borisii, S. Petraschii, S. Paulinae, S. Kyrillii, S. Rocheliana, S. coriophylla, the Welsh form of S. decipiens, and the very dwarf S. lilacina, are more or less in flower. Primula denticulata and P. cashmiriana alba are flowering by the lake side, and also in the rock garden with Primula leucophylla, P. crispa, P. viscosa, P. glaucescens purpurea, P. Sieboldii, P. The Jewel, P. Willmott hybrids, and P. Hopkin's Victory.

In the marshy flats, washed by the stream draining the gorge, are the bright, rosy-carmine flowers of Primula rosea. Already the flower heads of Meconopsis pseudo-integrifolia are well advanced, clustering at the apex of the growths. In the chinks of an almost perpendicular rock face Armeria caespitosa is established, and cob-webbed with numerous heads of pink flowers. The large white flowers of Trillium ovatum are conspicuous above the mass of foliage and in marked contrast to the drooping purple bells of Sisyrinchium grandiflorum, hidden in the narrow, rush-like leaves. Daphne Blagayana and Osmanthus Delavayi, with fragrant Daphne-like flowers and dark green foliage, are flowering freely.

Indoors—sheltered from the cold blasts which earlier in the season played havoc with the precocious Rhododendron moupinense, R. parvifolium, R. macronulatum, R. intricatum, and R. praecox -Rhododendron arboreum is brilliant with scarlet trusses, reaching to the roof in a lofty house. Here, in the sunlight, the blood red flowers of R. neriiflorum glow like stained glass. One end of the Succulent House is draped with Streptosolon Jamesonii; evidently the conditions here suit this plant perfectly, as it is a mass of flowers from end to end. The scarlet Combretum grandiflorum is flowering on the roof of a stove house, and in the corridor, Strelitzia Reginae, Polygala myrtifolia and the shrubby Jovellana violacea with gaping flowers, mauve and yellow are attractive.

In the warm Orchid house there is a fine display of varieties of Dendrobium nobile, including D. n. giganteum, D. n. Virginale, D. n. elegans, D. n. Sanderiana, and D. Sir F. W. Moore, together with Dendrobium Juno, D. crassinode, D. aureum, D. Euryalis, and D. Brymerianum; Dendrobium dulce × aureum is a magnificent variety with exquisite colouring in the lip. Other showy Orchids in flower are Cattleya Lawrenceana, C. Schröderae, C. Mendelii, and C. Aphrodite; Epidendrum sceptrum, E. gattonense, E. Burtonii, and E. evectum; Miltonia vexillaria, Cymbidium eburneum, Renanthera Imschootiana, and Maxillaria Sanderiana, with large claret-blotched flowers four to five inches across—"there is not a quainter, or more attractive flower than this species, when fully expanded." *F.*

TREES AND SHRUBS FOR PARKS AND DRIVES.

Although ornamental trees and shrubs have been extensively planted for garden decoration, especially in pleasure grounds, the drives and approaches have not received the same attention from planters as the spaces immediately surrounding the mansion. Throughout the country there are many examples of bare and uninteresting roads and drives which might and should be made effective, as they form one of the most frequently used parts of the grounds. Bold groups of Conifers with, here and there, beds of flowering trees and shrubs, with fairly large spaces between, would make all the difference between a road exposed to all the elements, and one which affords that slight sense of shelter which is appreciated as soon as the entrance gate is passed. The value of Conifers for this kind of planting will be apparent, for, besides being evergreen, they are of varied form and colouring with the added advantage that roads bordered with them are more easily cleared, and broken limbs are not so much in evidence after a gale as when deciduous trees are planted.

Effective grouping is a matter of taste, but groups ought to be more in evidence than single specimens, and a single line of these trees, whether straight or not, is of little use for effect.

Two or three trees of the golden forms of Cupressus Lawsoniana, standing behind a belt of Retinospora plumosa aurea, or Cedrus atlantica glauca, behind some of the blue Junipers, is the kind of planting to give character to the whole drive, but it must not be overdone. Other groups might include Picea Morinda and Abies lasiocarpa, and, for more formal outlines, Picea Nordmanniana, P. nobilis and P. Parryana. If these groups can be made to face the drive in front of a shelter belt the effect will be much more imposing. Much may be made of these latter as a suitable setting, by planting the more common flowering trees amongst the evergreens and hardier Conifers. These belts being at their widest nearest the drive, might run out almost to a single tree, as they recede into the landscape, and where a vista is formed between two, any meritorious tree already standing in the park could be brought into view, or one could be planted, provided always that it is far enough away to allow a good view of the grass land beyond. Even in small places this method gives an impression of extended acreage, and the impression is much more pronounced where ample space is at command.

The Gean is a splendid tree for standing out by itself, as it is always interesting in form, and it has clouds of white bloom when the grass is at its brightest, while its leaf colouring in autumn equals that of many plants grown especially for it.

For a dip in the park, where the soil is usually moist, Catalpa bignonioides is well worth a place for late summer effect, and for winter effect in a similar position, Salix daphnoides looks well as a bold, irregular clump. The silky white catkins are partially unsheathed at the New Year in most winters, and given a background of woodland, or viewed from its south side, it is as conspicuous a tree as any during the first months of the year. Other Willows which are good as trees are Salix argentea, S. rubra and S. gracilistyla.

Coloured bark effects obtained from the Willow family are bright and varied. Those useful for this purpose should be massed in beds of one colour only; S. vitellina (yellow), S. britzensis (red), S. regalis (grey), S. basfordiana (reddish), S. pruinosa (white), S. purpurea (purple), and S. nigricans, a variety of phylicifolia (black), are about the best for this purpose and they should be planted nearer the drive than those grown naturally for the sake of the catkins for spring effect. They should be cut down every year in March.

Cornus sibirica and C. stolonifera are two brightly-barked shrubs that may be allowed to grow naturally.

The natural features of the park might be enhanced or accentuated by judicious planting. Rising ground at a distance, exposed to view between two screens of shrubs designed to hide the point where it joins the general level, is one instance; another is where rising ground is nearer the drive, and here it could be planted up altogether with suitable trees. A long hollow may be given the appearance of a ravine by planting on the steep sides, while banks by the side of the drive, if clothed with Genistas, Berberis and Cotonaster, would not encroach on the carriage way but would be much more effective than grass. *H. Arnold, Bedgebury Park, Goudhurst.*

TREES AND SHRUBS.

PRUNUS CANESCENS.

The bark of this tree is so dark on the main stem it presents the appearance of Betula nigra, still more so on account of the peeling bark, which adheres in broad and narrow belts on the old stems and branches, being sometimes even curled like brown shavings, revealing a smooth and lighter brown surface. The bark is shed after the first year.

The young wood is covered in short hairs; these appear grey on the ovate-lanceolate leaves. The leaf margin is bi-serrate, each tooth terminated by a reddish gland

The flowers are generally produced in threes on a short stalk from buds formed the previous year. The petals are almost the same colour and size as the ray-florets in the Daisy, and are of a rather fleeting nature. The flowers not large enough to be conspicuously bright, but as they have a somewhat large, reddish calyx-tube with an inflated base, this adds somewhat to the effect. The stalks, pedicels, calyx and lobes are distinctly hairy. The stipules are foliaceous and gland tipped. The species is a native of China. *C. F. C.*

BAMBOOS.

These elegant foliage plants are hardy in the greater part of the country, but cannot withstand cold easterly and north-easterly winds, hence a position which affords shelter from these quarters should be chosen.

The members of the Bamboo family delight in a light, sandy soil, where their fleshy roots can ramify freely. Established plants grow very vigorously in such soils and need little further attention beyond the annual removal of the old growths. It is, however, not always easy to establish them and they frequently need careful nursing during the first season.

No better time than May can be chosen for planting new clumps or transplanting old ones; they should be copiously watered during the first season and a mulch of vegetable manure is of great benefit. *W. Auton.*

HARDY FLOWER BORDER.

ANTHEMIS CUPANIANA.

This Italian Camomile, though by no means a novelty to our gardens, is not seen as often as it might be, for it is one of the most useful and certainly not the least beautiful of its race. It is the first to come into flower and usually the last to bloom, flowering more or less profusely from April to late autumn. Moreover, no plant is more easily accommodated. In good soil or poor, full sun or partial shade, it is perfectly content and the plant will continue for years without deteriorating.

A. cupaniana makes a broad, semi-decumbent mat of finely-cut, silvery-grey foliage, which has the agreeable aromatic properties of the genus. Above the leaves, rise, to a height of eight inches or more, a quantity of erect flower stems, each terminating in a large, pure white Daisy-like flower of good substance and quality. The plant is quite hardy and, as I have suggested, a true perennial. *J.*

PAPAVER GLAUCUM.

Papaver glaucum is a truly delightful plant, usually from 12 to 18 inches high, but sometimes of less stature when grown in poor soil. Fine plants may be obtained from self-sown seedlings, left to bloom where they appear, only thinning out superfluous plants. In a long series of years I can only recall to mind one occasion when the seedlings of P. glaucum were destroyed by cold in winter. It was an exceptionally hard, late frost, and not only seedlings of P. glaucum but of other annual Poppies and other annuals, which generally withstand our winters with perfect indifference were totally destroyed as well. At this season P. glaucum may well be sown freely in the garden in the open; sow very thinly, where the plants are to bloom, and thin the seedlings with a relentless hand. *S. Arnott.*

SPRING BEDDING PLANTS.

Late as the season has been, those flowering plants on which we depend for the gayness of our beds during the spring are now approaching their best, and this means to the gardener that his attention may be transferred to the raising of next year's stock.

For the growing on of many of these plants a partially shaded, cool border, in which a liberal quantity of vegetable manure has been incorporated, is the best position. Not only is the vegetable manure an ideal medium for root formation, but its water-holding capacity is also very high, thus enabling the plants to resist periods of drought during the summer. Such plants as Arabis, Aubrietia, Daisy, Polyanthus, etc., may be increased by dividing them and replanting small, rooted portions in the border, where they will make strong clumps for planting again in the autumn.

If sufficient stock cannot be obtained in this way, Arabis, Alyssum and Aubrietia strike readily from cuttings inserted in light, sandy soil in boxes, placed in a cold frame and kept closed for a few weeks. All these plants may also be raised from seeds, together with Canterbury Bells, Forget-me-nots, Sweet Williams and Wallflowers. Most gardeners decide their actual date of sowing according to experience gained of their own district and soils, but, generally, the first half of May is the best time, as it enables the seedling plant to become sufficiently strong and established to withstand the intense heat of summer. *W. Auton.*

FLORISTS' FLOWERS.

THE GOLD-LACED POLYANTHUS.

In the gardens of our friends, when early spring flowers are in the ascendency and Daffodils dance in the breeze, groups and borders are seen filled with Polyanthuses with rich, dark-red and golden-brown in their perianths, contrasting pleasantly with the lemon and gold colours of their centres. In these seedlings are many blooms with feeble, intermediate colours, interspersed with quite pleasing yellows, and frequently there are trusses of blooms showing traces of lacing on the flowers; a deep golden centre with a faint, golden, lace bordering, and a maroon body colour; sometimes one finds a flower of rich red hue surrounded by a lemon border, or one that is edged with gold. This lacing effect is entrancing like the sparkle of gems.

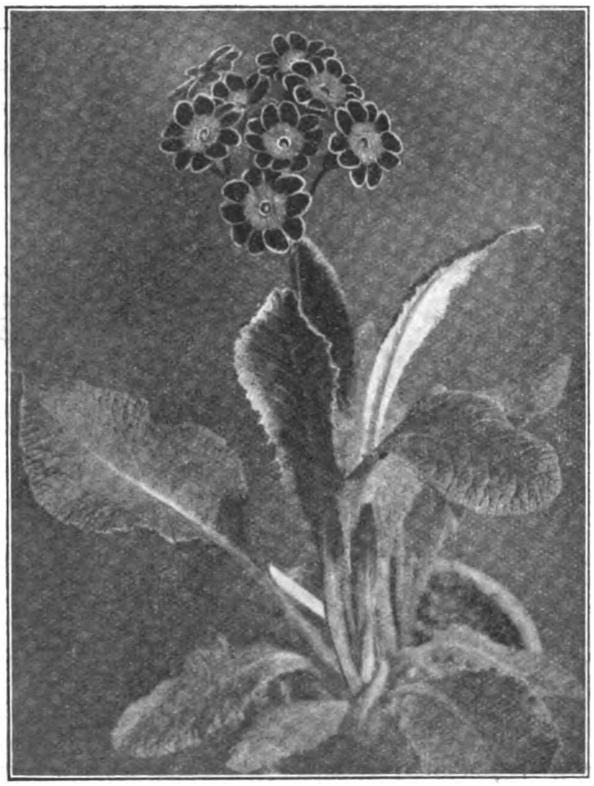

FIG. 113.—A GOLD-LACED POLYANTHUS.

The value of Polyanthuses as decorative plants for the open ground is great, and the nearer the flowers approach to the florist's ideal the more highly they will be esteemed.

I recall to mind the days of the Gold-laced Polyanthus of long ago, when one saw clumps of plants with their lightly corrugated leaves and bearing trusses of ten or more "pips," each with a bright lemon lacing encircling a very dark red body colour, a bright lemon tube, and a perfect centre; or a flat flower with loop-like lace of gold around every division of the corolla and dipping down to its centre, the interstices filled with solid red or brown.

To satisfy the florist of those days of sixty years ago the flower had to be flat, not cupped; it had to be round with a good centre and a rounded, not an angular tube, filled with anthers—have a "thrum eye." If it was well laced with lemon-yellow or bright gold and the body colour was a solid red-maroon or brown the flower was esteemed a "real gem springing from the maternal bosom of nature."

It was with such plants of charming sweetness and exquisite form that our grandfathers would . . . .

> "Write Love's fair alphabet upon the sod
> In many coloured flowers."

Were the old florists right in thus idealising the first gems of the season, and might we not capture some of their joys if we sought after the ideal and brought back into cultivation the types of long ago?

For the open ground we do not need to insist on all the points of the florists in these gaily-laced flowers: the "pin eyed" bloom will be quite attractive in the bed, and if the flower has not all the qualities required for the exhibition table, it possesses a charm all its own in its place in the garden.

Floral fashions may be to blame if there really has been a forsaking and forgetting of florists' flowers; they were never in the hands of those to whom flowers are mere masses of colour made in nature's paint; but they have been the delight of many a man in whom the love of nature was inborn and inextinguishable, whose means were very spare, whose garden space was poor and cramped.

As the system of bedding out of tender plants increased in popularity, the decline in taste of many florists' flowers became marked. There are the faithful few, inheritors of floral traditions, who have kept the flower growing through years of neglect; many there are of cultured taste in garden work, with time and opportunity to spare, who might, but have not yet, taken up the culture of the flower.

In recent years efforts have been made by members of floral societies in some cases to improve the flower, in other cases to restore the hardiness of the plant and increase its vigour by cross fertilisation and the raising of seedlings from seedlings and thus fixing the type. The cultivation of the Polyanthus is quite simple to gardeners interested in seedling raising, and its lore easily acquired by all lovers and cultivators of flowers; yet raisers in general have hitherto devoted more attention to colour than to form, neglecting many old flowers, such as the "Gold-laced Polyanthus" (Fig. 113). I plead for its restoration to favour in the garden. *Charles W. Needham, Hale, Cheshire.*

EDITORIAL NOTICES.

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ANDRÉ MOLLET'S "GARDEN OF PLEASURE," 1670.

FROM causes which were doubtless a tribute to the book as one of practical utility, André Mollet's *Garden of Pleasure*, 1670, has long since become one of the rarest English works on gardening. The only copy in a public institution in this country is apparently in the University Library at Cambridge, and that wants the plates. For many years after the book appeared, the plates were probably torn out of the volume and used in designing and laying-out gardens in various parts of England; they were "the last word" in garden designing, and so, like most other popular books, it got worn out of existence. Lady Cecil, in her admirable *History of Gardening in England* (3rd ed. 1910) was only able to record one copy, that in the possession of Lord Newton at Lyme Park; but another fine example came into the market last year, and is described in a recent catalogue of Messrs. Ellis, of 29, New Bond Street, who price it at £105; its last owner was the Hon. Mrs Eliot Yorke, of Aston Clinton, Buckinghamshire, whose collection contained other early books on gardening, notably Boyceau's *Traite en Jardinage*, 1639, which like Mollet's later book is more especially important as a book of garden designs.

The *Garden of Pleasure* of 1670 is in effect a new edition of *Le Jardin de Plaiser*, which André Mollet published at Stockholm in 1651, when he was head of the gardens of Christina Queen of Sweden, but several new plates have been added to the English edition, as well as verses on the author by Belon, and a dedication to the King of England. The Stockholm edition in French is not a great rarity, and perfect copies occur in the English market every now and then. Quaritch in 1898 paid £29 for the example which came from the library of Maurice Johnson, F.S.A., whilst Mr. Ford's sold for £11 5s. in 1904. The full title of the English edition is:—

> *The Garden of Pleasure, containing several Draughts of Gardens. Both in Embroyder'd Ground Works, Knot-works of Grass, as likewise in Wildernesse, and others. With their cuts in copper. By Andrew Mollet, master of His Majesty of England's Gardens in his Park of St. James. In the Savoy: Printed by T. N. for John Martyn and Henry Herringman*, 1670.

It is registered in *The Term Catalogue* of new books, Feb. 17, 1670, where it is entered as "a large Folio" "with Forty Brass Cuts," and it was sold bound at £1 4s., a very high price for a new book in those days. Perhaps all the "Brass Cuts" had to be newly engraved, and it may be noted that the entry in *The Term Catalogue* gives 40 as the number, whilst Lord Newton's copy only contains 36, and that of Messrs. Ellis's copy 35. These inconsistencies may be explained by counting double plates as single ones.

Although Lady Cecil has unearthed from the *Calendar of State Papers*, Domestic Series, Charles II, 1661—1662, a good many details bearing on Mollet's career in England, there are yet many facts which have not come to light, and even the exact date of his death has not been found. He was the son of Claude Mollet, head gardener of Henri IV and Louis XIII at Fontainbleau, who laid out the garden of St. Germain in 1595, and collected new plants especially such as had medicinal properties. In 1608 Claude Mollet planted the Tuilieries gardens in Paris. After his death his two sons, André and Noel published his *Theatre des plans et Jardinages*, 1652, with 22 plates of designs, and of this new editions appeared in 1660 and 1676. It is not known when he took service under Queen Christina of Sweden nor when he left it. It is certain, however, that he, with other members of his family, was in England during the Protectorate, for on June 29, 1658, a passport was issued for him, his wife and servant to Hamburg, and on July 1 of the same year another passport was issued for Gabriel Mollet and one servant for "beyond seas." Political reasons may have had something to do with their leaving England, but soon after the Restoration (May 29, 1660), one at least of the Mollet family was in England, for on June 30, 1660, Elizabeth, wife of Andrew Mollet, lodged a complaint that William Bentley, of Richmond, Surrey, the late King's woodmonger, made havoc of timber and wood to the value of £20,000, "and should be excepted from the general pardon."

One of the first effects of the Restoration in England was the introduction of the French style in gardening. The alterations in St. James's Park, Hampton Court and elsewhere made by Charles II. have been attributed to Le Notre, but Lady Cecil failed to find any documentary evidence that Le Notre was ever in this country or had anything to do directly with the alterations in the Royal Parks and Gardens; and there can be no doubt that these were done by André and Gabriel Mollet. A warrant dated December 10, 1661, gave one Adrian May the supervision of French gardeners employed in the Royal Gardens, "to examine their accounts and see that they have due satisfaction," for which he was to receive a salary of £200 a year. In June, 1661, there was a warrant to pay to Andrew and Gabriel Mollet £240 for wages as the King's gardeners," and for them to have the lodgings in St. James's Park belonging to the gardens. On September 27 of the same year there was another warrant to pay the same two persons "the yearly sum of £240 for wages for the Royal Gardens, St. James's Park, planting fruit trees and flowers." These are evidently two distinct payments, and the earlier one may have been overdue and the latter partly in advance. Payments under Charles II. were generally in arrear! In 1661 Gabriel Mollet sent in a bill of 1487 French livres, or £115 sterling, for plants bought in Paris for the garden at St. James's. This remained unpaid for some time, for a petition dated Whitehall, February 27, 1662-3, was received from Charles Mollet to the King for payment of £115 due for flowers brought from France by his late brother Gabriel, a planter in the Royal Gardens, St. James's Park; on this Adrian May, Surveyor of the Royal Gardens, reported that the flowers, being Anemones and Ranunculuses, were planted without his knowledge, and are only worth £14 to £18. Lady Cecil gives Gabriel Mollet's most interesting detailed bill in full. It would seem from Charles Mollet's petition that his brother Gabriel was dead by February, 1662-3, and there seems to be no clear evidence that the bill was ever paid.

In 1663 there was again trouble over arrears in money matters; there was a petition for speedy payment of the workmen under Andrew Mollet, Chief Gardener in St. James's Park. One of the workmen had been in prison for three weeks for a debt of 40s. which had swollen to £13," so that without relief he and his family must perish, the petitioners have been a year at work without a penny wages." Later on, apparently in 1664, there was another petition for the payment of the workmen under Andrew Mollet in the New Royal Gardens, St. James's Park, their wages being "half a year in arrears," and unless they are paid "the gardens must run to ruin, and cannot supply the privy kitchen of the King and Queen." It will be seen from these extracts that being a gardener under Charles II. had its disadvantages.

There are two other interesting references to André (or as he was called in England, Andrew) Mollet. On February, 1666, a warrant was issued to pay John Rose, the friend of Evelyn and Keeper of St. James's Garden, in place of Andrew and Gabriel Mollet, deceased, £240 a year in wages, for keeping the garden. It was this John Rose, represented as presenting Charles II. with a Pineapple, whose portrait with that of his Royal Master, was reproduced in *The Gardeners' Chronicle*, of January 15, 1921.

The second and later document, is a petition from Nicolas Pillars la Brie for the payment of £18 due to him for his work as gardener at 2s. a day from December 1664, to June, 1665, in the Royal Gardens, St. James's, under the gardeners Mollet, "now both dead;" according to the petition he came over from France with some trees brought over by the two Mollets.

It seems remarkable that so keen a gardener as John Evelyn should not mention André Mollet in his *Diary*, nor is he mentioned by Pepys, though both took a keen interest in the St. James's Park alterations. André Mollet was of the third generation of a famous family of French gardeners, and probably Gabriel and Charles Mollet mentioned above were his brothers. The exact date of the deaths of André and Gabriel seem to be nowhere recorded. It is, however, certain that they died in 1665, and probably both were victims of the Great Plague. He must have finished his *Garden of Pleasure* before he died, although it was not published until five years after his death.

From an English point of view the most interesting of the plates is the plan of the garden in St. James's Park; he claimed, further, that the designs "are all of my own invention and drawn with my own hand." The dedication to Charles II., the "invincible monarch," as he calls him, is in English, and it is just possible that some friend, now unknown, may have seen the book through the press. *W. Roberts.*

THE NAME OF THE CHRYSANTHEMUM; AND REMARKS ON CULTIGENS.

IN the interesting editorial article on "The Nomenclature of Cultivated Plants" in the *Gardeners' Chronicle* for November 17, 1923, is a statement in respect to the proposed binomial for the garden Chrysanthemum that needs modification. This Chrysanthemum is a cultigen. We probably do not yet know its botanical origin. As we are not able positively to refer it to a definite indigenous species, I proposed for it ten years ago the collective name Chrysanthemum hortorum, leaving the question open as to whether its ancestral indigen is C. indicum, C. morifolium, C. sinense, or other species. The point I tried to make in my paper quoted in *Gard. Chron.* is that both C. morifolium and C. sinense are themselves cultigens and therefore C. hortorum becomes a synonym rather than the reverse. The synonymy stands at present as follows (and this disposition is followed in my recent *Manual of Cultivated Plants*):—

> Chrysanthemum morifolium, Ram. *Journ. Hist. Nat.*, ii, 240 (1792); C. sinense, Sabine, *Trans. Linn. Soc.*, xiv. 145 (1823); *Trans. Roy. Hort. Soc.*, iv, t. 14; C. hortorum, Bailey, *Stand. Cyclo. Hort.*, 755 (1914).

One has only to read Ramatuelle's original account to see that he was describing as C. morifolium three varieties of developed Chrysanthemums; and a similar case is evident in Sabine's C. sinense. My conclusion, therefore, in the account quoted from *Gentes Herbarum* is this: "It is apparent that C. morifolium is a cultigen, and we have still to look for the wild prototype: and when the prototype is found we must expect it to carry some other name. C. sinense, Sabine (also a cultigen), and C. hortorum, Bailey, are to be considered as synonyms of C. morifolium."

C. indicum, L., is quite a different plant: and even though we find eventually that it has entered into the composition of the cultivated Chrysanthemums, or is even the direct source of them, we cannot properly expand its diagnosis sufficiently to cover the modern evolutions; if we were so to expand the diagnosis, we would at once lose the character for the species as an indigen and thereby confuse the situation. What we are to call the plant collected long ago by Augustine Henry (*Gardeners' Chronicle*, 1889, ii, 586, 652), is quite aside from the present argument; if it is a close original of Ramatuelle's C. morifolium, it may have to bear that name; but if it is diagnostically distinct (whether an original or not), it may better have a name of its own.

I see no way to get a clear treatment in the names of cultivated plants unless we cease to confuse conjectured origins with nomenclature. This subject I discussed in my Brassica paper (*Gent. Herb.* fasc., ii, 55) and again in the Rubus paper (l.c. fasc., iv, 145). The cultigen must be accepted as a fact; and it must therefore be named as a fact, always, of course, under the guidance and restraint of accepted rules of nomenclature. There are many historic examples of named cultigens, as Zea Mays, Pyrus Malus, Triticum aestivum, Brassica Rapa, Phaseolus vulgaris, Raphanus sativus, Beta vulgaris, Lactuca sativa, Pisum sativum, Rosa damascena, Dahlia pinnata, Asparagus officinalis var. altilis.

Perhaps it may be well to repeat that a cultigen is a plant or group known only in cultivation and possessing characters of systematic importance, presumably originating under domestication; it contrasts with indigen, which is a plant group or species known to be somewhere native and indigenous (*Science*, n. s., vlvii, 306). *L. H. Bailey, Ithaca, N.Y.*

NARCISSUS DAPHNE.

At the meeting of the Narcissus and Tulip Committee of the Royal Horticultural Society on Tuesday, April 29th, Narcissus Daphne (Fig. 114) received the highly coveted First Class Certificate by a unanimous vote. Unlike most varieties of Narcissus shown now-a-days, this flower did not arise as a result of the hybridists' work but appeared as a sport from the popular N. poeticus ornatus.

The flower was first seen about sixteen years ago by Mr. F. Culpin, Senior, one of the pioneer bulb growers of Spalding, who, at that time, forced large quantities of N. p. ornatus for market. The custom of the grower, when the flowers are ready for market, is to cut the whole of the foliage with the flowers—literally to mow them down—and it was while the blooms were being sorted for bunching that a perfectly double flower was noticed. It was, of course, too late for the bulb to be marked, and subsequently the forced bulbs were planted again in the field. Mr. Culpin, realising that the flower was a valuable one and different from the ordinary late-flowering double-white variety (N. p. alba plena odorata), carefully watched this forced stock when it came into bloom two years later, and after diligent search, one of his sons found the plant. It was from this bulb that the stock was worked up.

In May, 1917, a very late season, Mr. Culpin exhibited a few flowers before the R.H.S. Narcissus and Tulip Committee under the name of N. poeticus ornatus plenus and it received an Award of Merit for show purposes, as too few flowers were exhibited to secure for it an award for market use.

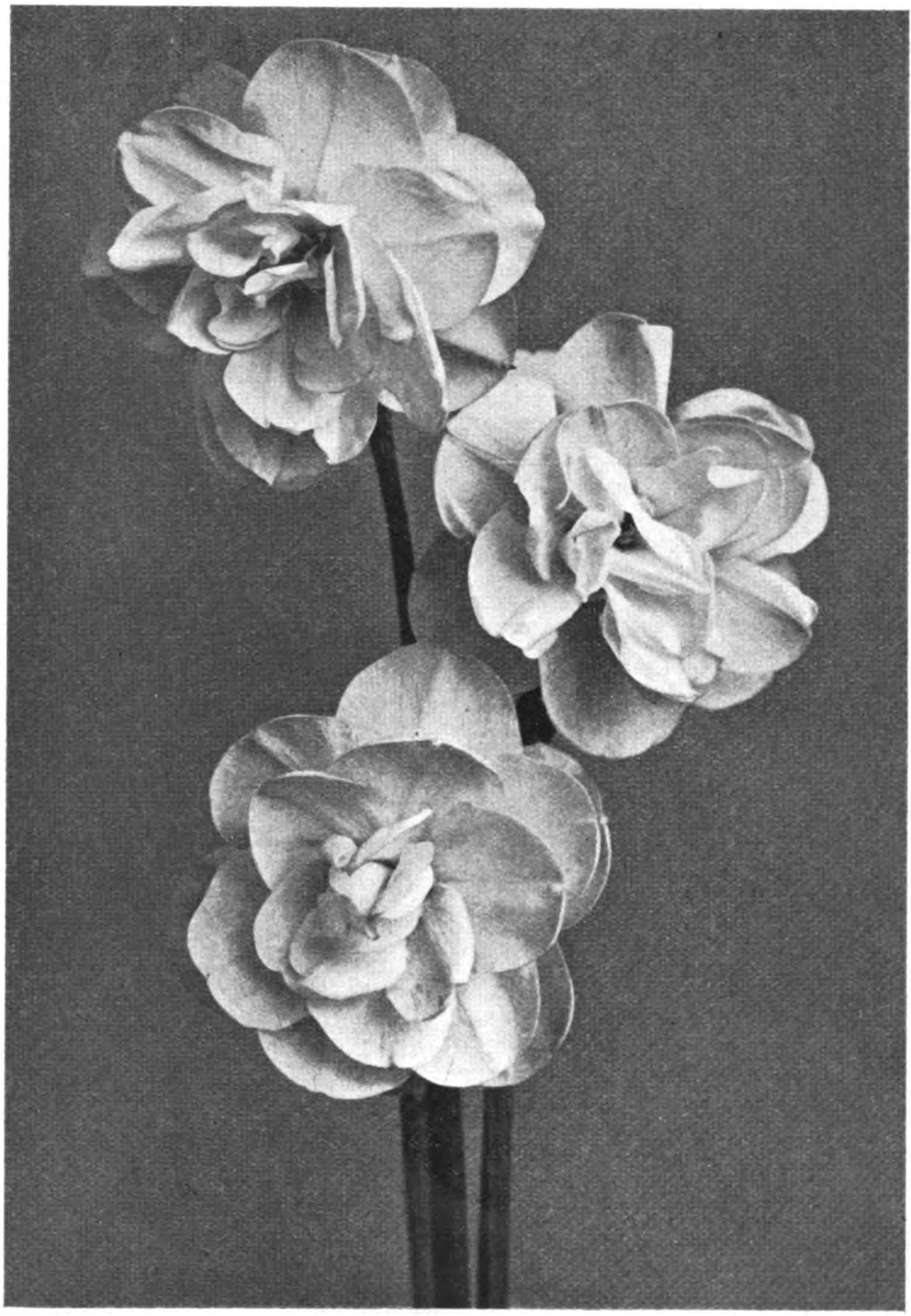

FIG. 114.—NARCISSUS DAPHNE: A DOUBLE FORM OF N. POETICUS ORNATUS. R.H.S. FIRST CLASS CERTIFICATE, APRIL 29 (SEE P. 222).

The next year the variety was again shown before the Committee under the name of Spalding Queenie and on this occasion it was granted an Award of Merit for market use. From that time onwards little was heard of the variety, as it was never exhibited, although Mr. Culpin received many tempting offers for portions of the stock.

Last spring Mr. George Monro, whilst on a visit to Spalding, saw the variety in flower, and he was so delighted with it that he purchased the whole stock for £1000. When the bulbs were lifted and divided in 1923, the number of bulbs and splits totalled between 1400–1500, and Mr. Monro transferred parts of the stock to different localities in order to find in what soil and climatic conditions it would best grow.

It is almost impossible to convey any adequate idea of the extreme beauty of this flower. In form and purity of colour it resembles a perfectly developed white Border Carnation or even a Gardenia. The blooms are very full, highly fragrant, and possess about twenty-five "petals." It is a free grower, producing stems so long as sixteen inches, and it flowers from five to six weeks before the old Double White variety. Therein lies much of its value, but it possesses other attributes over that variety. It is not so fastidious as to soil or climate and does not go blind; moreover, it will force, and doubtless in years to come it will prove a popular market flower. When Mr. Monro took over the stock he desired to rename the variety Daphne—after his only daughter; a variety under this name had, however, already been registered by Sir C. H. Cave, but as his variety is now obsolete, he has allowed Mr. Monro to take over the name, and as the name of Spalding Queenie has been dropped, this flower will be known as N. Daphne.

THE PEAR-SCAB FUNGUS.

(VENTURIA PIRINA).

It was in this Journal,* in the year 1848, that the serious fungous disease now so well known to gardeners as Pear-scab was first described. It is true that a little earlier on the Continent, Madame Libert, in Belgium, in 1832, and soon after, Desmazières, in France, had given a technical description of a fungus occurring on the Pear, but it was M. J. Berkeley, that great mycologist and most perspicacious of early plant pathologists, who first recognised the parasitic and destructive nature of the fungus. Commenting on examples sent in by correspondents, Berkeley wrote:—"The disease was first observed by one correspondent three years ago and it has become worse in each succeeding year. At first the leaves only were attacked, but now the disease has reached the young shoots, which are blotched with it and in some cases quite distorted. Two Jargonelle Pear trees are attacked by it. The parasite is referred by Libert and Desmazières to the genus *Helminthosporium*, but it appears to us a *Cladosporium*."

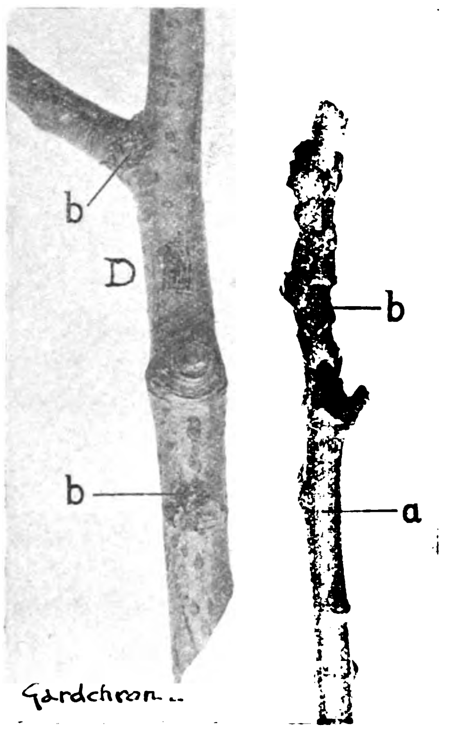

FIG. 115.—PEAR-SCAB FUNGUS ON THE YOUNG WOOD OF PEARS.

To right: on Doyenné du Comice; (a) healthy wood: (b) pustules of spores breaking through the bark, which is peeling off in flakes. (D) On Pitmaston Duchess; (bb) small scattered pustules of spores breaking through the bark.

In a later reference, in the same year, to further specimens, Pear-scab is described by Berkeley as "a disease with which Pear trees were affected, arising from a minute, olive-coloured mould, which attacks the leaves, fruit and young shoots and is highly injurious to the general health of the stock. Young dwarf standards of the Nélis d'Hiver and Glout Morceau have been preyed upon for the last three years."

In the *Gardeners' Chronicle* in 1855 Berkeley returns to the subject, and in an article† starting with the words "Why do Pears and Apples crack, and put on the appearance of rifted bark?" the following wise words occur which, although written nearly seventy years ago, still merit attention: "People little suspect that this ruin to their crops is one more example of the enormous injury inflicted upon plants by parasitical fungi." Still at the present day does many a good gardener, looking at the rough, corky scabs, or crackings, in the skin of the Pear erroneously attribute the injury to the effect of soil, aspect or weather conditions, whereas such injury, in 99 cases out of 100, is due entirely to the attacks of the Pear-scab fungus and is easily preventible by spraying.

The next advance in our knowledge of Pear-scab was made in Germany by Prof. K. Goethe, Director of the well-known Fruit Research Station at Geisenheim on the Rhine, who described and figured, in *Gartenflora* * in 1887, a stage of a fungus which develops during the winter months in the dead, scabbed Pear leaves (after these have fallen to the ground), and produces winter-spores. Prof. Goethe's observations, which were continued for eight years, led him to the conclusion that this stage with winter-spores constituted the true winter stage of the Pear-scab fungus, although no inoculation experiments were carried out to prove the matter. Another German mycologist, Prof. R. Aderhold, put the matter beyond doubt in 1896 by inoculating living Pear leaves with the winter-spores (ascospores) taken from the dead Pear leaves and found that they infected them and produced within a few days the well-known spots of the Pear-scab fungus. Prof. Aderhold considered† that the correct name for the Pear-scab fungus is Venturia pirina, and for the Apple-scab fungus, V. inaequalis.

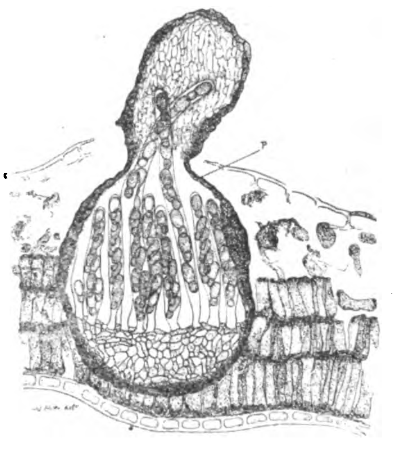

FIG. 116.—PEAR-SCAB FUNGUS.

Section of dead Pear leaf, showing the perithecium containing asci and ascospores. × 200.

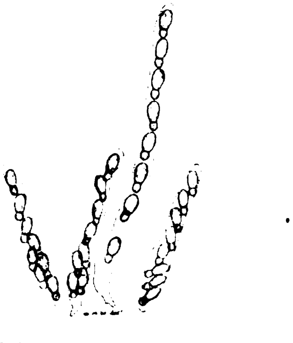

FIG. 117.—PEAR-SCAB FUNGUS.

Asci: the long, cylindrical ascus is about to discharge its ascospores. × 265.

The appearance of the Pear-scab fungus on the living leaves, fruit and young shoots of the Pear has been frequently described in this Journal, and reference may be made to an article‡ by one of us where the stage of the fungus on the young wood is described and an illustration (reproduced in Fig. 115) given. A list was included of the varieties of Pears most susceptible to scab as regards the young wood; this list includes Doyenné du Comice, Marie Louise, Jargonelle, Beurré Diel, Beurré Bosc, Clapp's Favourite, Pitmaston Duchess, and we may add that we have since seen Fertility with its young wood severely scabbed.

That stage of the Pear-scab fungus which occurs on the young wood has up to the present been the only one known in this country which persists from season to season. We have now to record the occurrence in England of the true winter-stage which, as noted above, has been found in other countries. During March last we found this stage in abundance in a garden at Wye, Kent, on dead Pear leaves collected by the wind at the foot of a Hawthorn hedge, close to a number of Pear trees which have borne scabbed fruit for a number of seasons.

The fruit-bodies (perithecia) of the fungus are just visible to the naked eye as minute dark-coloured points scattered or thinly grouped over both or either of the surfaces of the leaf.* (See Fig. 116).

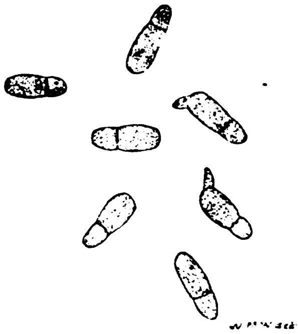

FIG. 118.—PEAR-SCAB FUNGUS.

Ascospores. × 530.

Within the fruit-body are large numbers of asci (Fig. 117), and each ascus contains eight two-celled winter-spores. When the fruit-bodies are ripe, the winter-spores are forcibly discharged in quick succession from the mouth of the neck. Prof. Aderhold has shown that these spores can be ejected to a distance of 1 cm. (= two-fifths of an inch). All through the spring months—from April or May on into June—these winter-spores are discharged in vast numbers from the dead Pear leaves lying on the ground, and those that, carried by currents of air, reach the young leaves or fruit at once infect them and produce the well-known velvety spots of scab—the conidial or Fusicladium-stage. Prof. Goethe was the first to note that in the Pear-scab fungus the larger cell of the winter-spore occurs uppermost in the sac (ascus) (see Fig. 117), while in the Apple-scab fungus it is the smaller cell of the winter-spore which occupies this position.† Prof. Aderhold later confirmed this, and states that in the hundreds of perithecia of the Pear and Apple-scab fungus, respectively, which he examined, not one ascus was found in which the winter-spores departed from this rule.

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* M. J. B., in *Gardeners' Chronicle*, 1848, pp. 398, 716.

† M. J. B., in *Gardeners' Chronicle*, 1855, p. 724.

* *Gartenflora* xxxvi, p. 293, tab. 1248 (1887).

† Die Fusicladien unserer Obstbäume (*Landwirtsch. Jahrb.* xxv., 875, (1896).

‡ *Gardeners' Chronicle*, July 14, 1906.

* The technical description of the fungus found on dead Pear leaves at Wye is as follows:—Perithecium flask-shaped, amphigenous, 90–160μ diameter, averaging 133μ, total height (including neck) 210–280μ, averaging 229μ; neck projecting 40–90μ beyond epidermis of leaf, averaging 61μ; setae up to six in number, often absent. 30–52μ long × 4 to 5μ wide, dark brown, average length 42μ; horizontally spreading, septate, colourless hyphal outgrowths (up to 14 in number) from the neck, measuring 50–180μ × 3 to 4μ (aver. 128μ) are sometimes present. Asci numerous, at first oblong-tapering, 64 to 88μ × 8–12μ, averaging 77 × 11μ, elongating to about twice that length before ejecting spores. Ascospores unequally two-celled, yellowish-green, translucent, oblong-cylindrical, rounded at ends; upper cell (in ascus) longer and slightly broader than the lower, 12–19μ × 6–7μ, averaging 16 × 6μ.

† This was shown in our illustration (Fig. 82) in this Journal for April 5, 1924.

It seems very possible that the winter-spore-producing stage occurs commonly in England, but has been generally overlooked. Dead Pear leaves obtained from a correspondent on March 24 from a garden near Barnstaple, N. Devon, have produced this stage in abundance.

In Germany (Silesia), according to the statement of Prof. Aderhold, it is the exception to find dead Pear leaves free from the winter stage of the Pear-scab fungus.

Actually the winter-stage of both the Apple-scab and Pear-scab fungus was found in this country by M. C. Cooke in 1866, who described* a fungus, as a new species under the name of Sphaerella inaequalis, "on the dead leaves of Pyrus Aria. Shere, Surrey (Dr. E. Capron). On Ash, Hawthorn, Pear, Apple (M. C. Cooke). Apparently very common." Through the courtesy of the Director of the Royal Botanic Gardens, Kew, and of Mr. A. D. Cotton, we have been able to examine specimens preserved in Cooke's herbarium. Among them is an example on an Apple-leaf collected by Cooke and labelled "Henlow, Beds., Ap. 1866." This conforms in all its characters with Venturia inaequalis, the Apple-scab fungus.

Another specimen is labelled "Micro-fungi britannici, 495. On Pear leaves, Forden" (Montgomery). Mr. J. Ramsbottom has kindly informed us that this is part of a set of micro-fungi distributed by the Rev. J. E. Vize in 1884. We have examined this, and found it identical with the winter-stage of the Pear-scab fungus described above. When these fungi were collected, it was not, of course, known that they were connected with the summer-stage (Fusicladium) of, respectively, Apple-scab and Pear-scab. These old records of the occurrence in England fifty-eight years ago of the winter-stage of the Apple-scab and Pear-scab fungi have remained completely forgotten; neither in the works of later writers, *e.g.*, Massee's *Diseases of Cultivated Plants*, nor in the leaflets of the Ministry of Agriculture, do we find any reference to the existence of these records

With regard to the prevention of the Pear-scab disease, we can, now that the full history of the fungus is known, lay down certain rules as regards the best measures of control. (1) When Pear trees have borne scabbed fruit, the fallen leaves beneath them should, so far as possible, be well dug into the ground before April, or, alternatively, be swept together and burnt. If converted into leaf-mould, this should not be used on ground near Pear trees until old and well-rotted. (2) In pruning the tree, the young wood showing the pustules of Pear-scab should, where possible, be cut off and burnt. Where scabbed wood is left in the tree, a winter spraying in March with lime-sulphur (1 gallon of the concentrate (1.30 sp. gr.) to 14 gallons of water) will do good. (3) Directly the blossom has set (or, better, while a few flowers still remain open), spray the tree thoroughly with Bordeaux mixture, using a fine, misty spray and taking care to wet the under-surfaces of the leaves. Repeat the spraying with Bordeaux Mixture three weeks later. These early sprayings are of the utmost importance in the control of Pear-scab; they prevent the fungus from infecting the leaves and producing there immense numbers of spores which, in showery weather, pass to the fruits and make them 'scabbed.'

Bordeaux mixture is, in our experience, quite harmless to the foliage of any variety of Pear, and should always be used against Pear-scab; lime sulphur is not so strong a fungicide, and when used on some varieties, *e.g.*, on William's, Bon Chrétien, may injure the foliage. If a Pear-tree which has been producing a crop of 'scabby' Pears for a number of seasons (and their number is legion), is taken in hand and given two good sprayings with Bordeaux mixture, the effect is certain; it will at once produce a percentage of absolutely clean Pears, and incidentally demonstrate to any sceptical person the value of spraying at the right time with the right fungicide.

One other point of practical importance deserves to be noted. Investigations have shown that the spores of the Pear-scab fungus require a drop of moisture (rain or dew) in order to be able to germinate, and, concordant with this fact, many observers have pointed out that espalier-grown Pears protected from direct rain suffer less from scab. In special cases, as in the production of valuable dessert pears, it might be practicable to provide mechanical protection from the rain; or to adopt another method, recommended in France for use in the growing of the choicest Pears (*"les fruits de luxe"*), *viz.*, to tie on paper bags over the young healthy Pears to preserve them from becoming infected later in their growth. *E. S. Salmon and W. M. Ware, Mycological Department, South-Eastern Agricultural College, Wye, Kent.*

COMMON GARDEN PESTS.

At this season of the year it may not be out of place to give a few words of advice on keeping in check the ravages of the many pests, insect and otherwise, which help to make the gardener's life a burden.

The most ubiquitous and omnivorous of these enemies of garden plants is undoubtedly the slug, a creature which needs no description to anyone who cultivates a garden. The following hints are recommended as being the best available for the control of this pest. Certain weeds, such as Charlock, Cresses, Mustard, Docks, and Nettles, are those favoured by slugs, therefore cleanliness and tidiness are great factors in slug control. Do not leave heaps of material lying about, such as Cabbage leaves, etc., as these afford harbourage to slugs. The best spraying material for keeping down slugs consists of a mixture of aluminium sulphate and a saturated solution of lime in water. The formula recommended by the Seale Hayne Agricultural College may be briefly described thus: Half a pound of good quicklime is added to four gallons of water. After slaking is completed and the water has become quite cold, the clear lime water is poured off from the excess of lime. One pound of aluminium sulphate is then dissolved in one gallon of water and the two solutions mixed. Apply the spray by means of an ordinary hand sprayer, preferably after a shower or in the evening.

Anyone growing Cabbages or Cauliflowers is probably familiar with the maggots which attack the roots of most Brassicas, causing first a wilting or yellowing of the foliage, followed usually by the death of the plant. These insects, known popularly as the "Cabbage Root Maggot," are the larval stages of a small grey fly similar in appearance to the common house fly. The eggs are laid in spring on the collar of the young plant, and the maggots on hatching burrow down to the root where they live, feeding upon the tissue. For a small garden the best preventive is a mechanical device known as the "Tarred Felt Disc," which is fitted round the Cabbage or Cauliflower at the time of planting out. It consists essentially of a small square of ordinary tarred, roofing felt, with two longitudinal slits at right angles to each other. The disc prevents the fly from depositing her eggs upon the plant. Discs may be obtained quite cheaply from most seedsmen. Another good remedy, much practised in America, consists of the application of a solution of "corrosive sublimate" in water, about a cupful to each plant. Apply four times, at intervals of a week, from the time of setting out the plant. This substance is very poisonous so must be used with care. It requires a little heat to make it dissolve; use at the rate of one ounce in ten gallons of water.

Both Onions and Carrots are very liable to root attacks similar in nature to the above. The symptoms of infestation in the case of the Onion are yellowing and wilting of the foliage, and in the case of the Carrot, a red rust-like tinting of the tops. This is also due to the attacks of fly maggots, though differing in appearance and species. A good preventive for these attacks consists in the application of a mixture of dry chalk or dry earth and cresote (or the waste product of tar distillation known as "green tar oil") in the proportion of one part of the chemical to ninety-nine parts of dry earth or chalk. Dust this mixture lightly among the plants when they are about two inches high; repeat at fortnightly intervals.

Growers of Celery are familiar with the unsightly blistering of the leaves caused by maggots feeding upon the tissue between the upper and lower skins of the leaf. The plants suffer greatly in vitality, largely owing to the loss in leaf area due to the feeding of this pest. Spray in early spring with the following mixture: green tar oil, 1 oz.; soft soap, 1 lb.; water, 10 galls. A soap and nicotine spray is sometimes effective. Remove and destroy such weeds as Fool's Parsley, Angelica, and Cotton Thistle, as these are the wild food plants of the maggots.

Some very destructive pests of garden plants are the soil-inhabiting larvae of various insects, perhaps the worst being the well-known wire worm, the larva of a small beetle. This creature, owing to its great resistance to poisons and its long life in the larval condition, is exceedingly difficult to deal with. Keep the soil well aerated with the hoe and produce a good tilth, the wire-worms will then tend to come to the top and are greedily eaten by birds. Traps in the form of pieces of Carrot, Potato, or Beet placed in the soil are worth trying for a small garden.

Much the same treatment will apply to "leather-jackets," the tough-skinned, caterpillar-like maggots of the Daddy-long-legs or Crane Fly, which have the unpleasant habit of biting off the seedling plants level with the surface of the soil. In this case substitute small pieces of turf sunk in the ground as a trap in the place of pieces of Carrot or Potato. In Holland a machine has been designed for dealing with this pest on a large scale. It consists of a horse-drawn farm cart, in the floor of which has been fitted a machine which cuts a narrow trench with vertical sides in the ground. In this trench a supply of poisoned bran is automatically spread. The leather jackets, in their peregrinations over the fields fall into the trench, and being legless cannot climb out again. They feed upon the poisoned bran and are killed.

A good remedy for the Big Bud Mite disease in Black Currants consists of a dressing of lime and flowers of sulphur. Give three dressings at fortnightly intervals. The first should consist of one part of quicklime and eight parts of flowers of sulphur, the other two of flowers of sulphur only. Apply when the bushes are wet. The first application should be made as soon now as possible. Seedlings affected with Big Bud may be disinfected by immersing them in water heated to about 115° F. for ten minutes before planting.

It is well to remember that healthy plants are less liable to insect attack than weakly ones, and an attacked crop may often be saved by the timely addition of some artificial stimulant which will enable it to grow away from the disease. This is well illustrated by the fact that an Onion crop badly attacked by the Onion maggot may often be saved by the application of a dressing of nitre. *Kenneth M. Smith, The University, Manchester.*

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* *Journal of Botany*, IV, 248 (1866).

THE PLANT COMMONWEALTH AND ITS MODE OF GOVERNMENT.*

(*Continued from p.* 257).

Cover or cut off the tip of the first leaf of a grass seedling and the middle, motor, actively elongating region fails to respond by curvature to one-sided illumination. It is therefore evident that there is often a definite separation of receptor and effector region and one of the most interesting problems in plant physiology is to discover how that gap is bridged. In animals nerves serve to connect the receptor organs—the receivers of specific stimuli—and the effector organs—the structures which respond by movement or other definite changes. But though many have sought for and some have thought to find them, those specialised conductors of excitation which are called nerves appear to be absent altogether from plants. Some have believed that the intercellular protoplasmic fibres serve like nerves to conduct impulses. It may be so, but facts are not very favourable to this interpretation of their function. It would indeed seem more probable that the protoplasmic intercellular strands serve to transmit not nervous impulses but materials from cell to cell. There is, however, no need to carry these speculations further, since recent discoveries have thrown a new light and put a different complexion on the mode of transmission of excitation in plants. If a little mica plate be inserted into a cut made half way across the tissue of the first leaf of an Oat seedling at a short distance behind the receptive tip, excitation resulting from unilateral illumination is transmitted as in intact plants. But if a second plate of mica be inserted in a second cut made on the opposite side at a slight distance from the first no curvature results; the plant remains unresponsive to unilateral illumination. Similarly as might be supposed if the tip be cut off completely and replaced so that it rests on a plate of mica introduced between it and the rest of the leaf, curvature does not occur. But if the tip be cut off and glued on again with gelatine, unilateral illumination induces the same curvature as it does in the intact Oat leaf. The receptor apparatus in the tip suffers no damage from the operation and undergoes the same excitation as in the normal plant. This excitation passes through the gelatine to the intact effector region and brings about in that region re-distribution and changes in rate of growth which are made manifest by curvature. There would, therefore, appear to be no escape from the conclusion that that which passes from receptor to effector regions is a stimulatory substance—a hormone. The message transmitted by the receptive tip to the reacting region is a chemical message. As a letter in the post bag may pass many doors and cause no stir until it is delivered at the right address, so the hormone which evokes heliotropic response passes through or by many cells without so far as is known producing any effect upon them. It is not for their address. Only when it reaches the cells beyond the growing point which have ceased to divide and begun to grow in length and breadth does the message which the hormone bears become significant. Similar beheading and reheading experiments have been made by Mr. Snow in my laboratory. Although it might seem unduly sanguine to expect anything to happen after a root tip has been cut off and stuck on again, the experiment which has now been repeated many times demonstrates that the receptive tip after the operation responds to the stimulus of gravity stimulation and that the message which provokes curvature in the growing region is transmitted across a gelatine junction.

(*To be continued.*)

BULB GARDEN.

SNOWDROPS.

After reading *Formakin's* note on Snowdrops in your issue of March 22 (p. 160), the thought arises, which are the kinds that he "hates" as being "bloated, over-fed-looking species?" And is he familiar with the better varieties of Galanthus plicatus and G. Elwesi and the many interesting forms of nivalis? Such forms as poculiformis, flavescens and Allen's seedlings, of which I need only mention as an example, Magnet, a large handsome flower on a long pedicel (two flowers frequently being produced on one stalk), are flowers to which very few will agree that his denouncements apply.

It is true that "suitability of place" is a factor tending to give a proper conception of the beauty of Snowdrops, but what constitutes that "suitability?" *Formakin* states that "on flat ground" they seem ill at ease. It has been my good fortune to see millions of Galanthus nivalis carpeting the "flat ground" by the River Ellen in Cumberland, where the soil is never baked dry, and in their season giving a carpeting of white. On March 31 I carefully examined a bank where there seems to have been formerly a hedge. The bank is more or less below Beech trees, and on examination it is found now to consist of fairly loose soil with a covering of an inch or two of leaf-mould. Ivy is creeping over this and forms a somewhat dense covering which yearly becomes deeper from the leaves which get held there by the Ivy. In this position—which in the last few summers has been almost bone dry—G. nivalis is, contrary to Sir Herbert Maxwell's experience (p. 119), growing luxuriantly with leaves, like his, rising twelve inches above the ground. They have this season—after two very dry years—flowered freely and are showing abundance of swelling seed pods.

Formakin's statement that "Snowdrops only increase by offsets, never by seed," made me examine those growing on this old hedge-bank and not only were there hundreds of seed pods swelling and promising seed, but a few plants are growing around the parent clumps, which, from their size, I take to be seedlings. I assume this the more readily because for years I have saved seed from the other varieties and grown them on to flowering state. This year I hope to watch the development of these G. nivalis seed pods (70 to 80 on some clumps) in order to see whether they develop and ripen as well as the others I grow.

I have also been examining some Snowdrops which are growing in woods here. They are in similar clumps to those I have just described and are forming seed pods, but in a short time will be entirely hidden by Nettles. Notwithstanding this, they appear to thrive and increase.

Mr. R. O. Backhouse, of Sutton Court, Hereford, informs me that seedling Snowdrops come up in his garden walks, so that a free rooting medium is apparently not essentially necessary for the growing of these delightful spring flowers. Consideration of the subject raises the question whether increase in size of clump arises solely from the splitting up of the bulbs. Examination of a clump here shows that this is not so, and I enclose a number of small bulbs which, I think, you will agree are seedlings. [Yes.—Eds.] They were taken from the inside of a clump and were nearer the surface than the present bulbs.

Does not *Formakin's* experience with these flowers grown in a field suggest that the grazing down of the Snowdrop leaves is a sufficient reason for the dwindling of those planted in that portion of the field, while those on which the foliage is left to grow and naturally die down, thrive luxuriantly? My experience is that the best "manure" for Snowdrops is plenty of well-decayed leaf mould.

When examining the Snowdrops on the hedge-bank, I noticed some clumps of Von Sion Daffodils growing beside them. These have also increased largely in the size of the clump, but unlike the Snowdrops, produce very few flowers. In the woods, a small bicolor Daffodil (Narcissus Pseudo-Narcissus), growing seven inches or eight inches high, comes nto bloom as the Snowdrops fade and gives a pleasing effect. I wonder what kinds prove so "crude and tiresome" to *Formakin*.

Only one other point in the article under discussion calls for remark, viz., that the Snowdrop seems to be immune from disease. In a great many places it seems to be, and long may those districts remain clean, but that disease does attack Snowdrops is clearly stated in Mr. Dowson's article on the same page as *Formakin's*, and some growers appear to have difficulty in increasing their stocks of the more uncommon Snowdrops on account of it. Personally I have not had any experience of the disease.

Coming into bloom at intervals from early in January, Snowdrops, with me, were over at the end of March, except one—a variety of G. nivalis—given to me by the late Mr. W. G. Boyd, of Faldonside, with the appropriate name "late-flowering green." This has been the last to flower each year. Its outer petals are heavily marked with green, which gives it a shabby appearance, but its lateness suggests the possibility of raising others which would extend the period of flowering. This year, however, I have no others in flower to cross with it. *P. Murray Thompson, Hereford.*

INDOOR PLANTS.

CENTRADENIAS.

The cultural requirements of these warm greenhouse, evergreen Melastomads are not exacting and it is surprising that the plants are not more generally cultivated. Apart from their value as winter flowering plants the foliage is distinctly ornamental.

The flowers of C. floribunda are small individually: they are four-petalled and cruciform. In their profusion they smother the plant, being borne in axillary and terminal panicles.

C. grandiflora is an excellent subject for house decoration; the cut sprays, pink in colour, remain fresh over a long period.

C. inaequilateralis, or C. rosea, as it is more usually called in gardens, forms a compact bush one foot high. It is denser in habit and has smaller foliage than the others mentioned; the flowers are a rosy-pink and produced in terminal racemes.

The Centradenias are readily raised from cuttings made of the lateral growths. The plants should not be over-potted; a receptacle five inches in diameter is large enough for a specimen from one foot to two feet high. The compost should consist of light, fibrous loam, adding peat if the loam is heavy in texture. *F. W. J.*

HOFFMANNIA GHIESBREGHTII.

Tops of old, leggy plants of Hoffmannia Ghiesbreghtii cut off and inserted in strong bottom heat root readily at this season. This Hoffmannia grows freely, and when planted in wide pans, six to eight young plants together, is very effective in the warm greenhouse. With age it becomes "leggy," branching somewhat sparsely.

The leaves are one foot in length and are stained purple-red, with a pronounced sheen. The veins are silvery and prominent.

There is a variegated form with the variegation running in well-marked bands between the parallel veins, or the whole of the leaf surface may be splashed with white and yellow. The flowers are inconspicuous, crowding the angular stems in densely packed cymes. *Fred W. Jeffery.*

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* Discourse delivered at the Royal Institution on Friday, March 21, 1924, by Sir Frederick Keeble, F.R.S.

ANNUALS FOR GREENHOUSE AND CONSERVATORY DECORATION.

CINERARIAS.

The garden Cinerarias of the present day, in their many beautiful varieties, are generally supposed to be descended from Senecio cruentus, a native of the Canaries. No doubt other species have influenced the present garden race, but on this point we have no reliable information.

At one time the large-flowered, so-called florists' varieties were most popular, and although still largely grown they have to a great extent been superseded by the more decorative types, as represented by the intermediate forms, with their taller habit, smaller flowers and more graceful appearance. At the present time these are largely grown for Covent Garden market, especially the fine blue and rose coloured varieties, which are great favourites; the market growers produce perfect specimens in 48-sized pots.

The stellata varieties, both tall and dwarf, are also very popular and useful for furnishing the conservatory, and for decorative work in general. There are also Cactus-flowered and double varieties but the latter are not much grown now.

In the florists' section, Matador, with flowers varying from brick-red to orange-scarlet in colour, is one of the most extraordinary developments in the later history of the garden Cineraria; this colour in the intermediate and stellata varieties is highly desirable, and there is evidence that it may not be long delayed. At one time desirable varieties were named and were propagated by means of cuttings which sprung from the base of the old plants. At the present day they are raised from seeds and, provided good strains are obtained, they come very true to character.

Seeds may be sown in pans or boxes in a warm greenhouse from the end of April until July; in fact seeds may be sown during September, and the resulting plants will flower the following May. Cinerarias require perfectly cool treatment and may be grown in cold frames during the summer months, although low pits are to be preferred, as the plants are then more under observation.

A light, rich, compost is generally advised for Cineraria; but private cultivators might, with advantage, copy the methods of the market growers, who use a good medium loam with little or no leaf-mould with the result that the foliage is stiffer and more robust and less liable to flag during bright weather.

For indoor decoration the plants are best grown in 48-sized pots, while for greenhouse and conservatory furnishing, six-inch or seven-inch pots are an advantage, as the plants last longer in flower in the larger receptacles.

Cinerarias enjoy a moist atmosphere, and perfectly cool cultural conditions during the summer; during autumn and winter they are best kept in a cool, airy greenhouse, where a little artificial heat may be used when necessary. When they have well filled their pots with roots they enjoy liberal feeding with diluted liquid manure and soot, alternated with some approved artificial fertiliser.

Cinerarias are very subject to attacks of of green-fly and this pest must be kept in check by frequent light fumigations; red spider sometimes appears, but this is due to too dry an atmosphere. Mildew may prove troublesome during spells of dull cold weather, or if the plants are overcrowded, or weakly grown. If it appears the leaves should be dusted with flowers of sulphur, or, better still, use the sulphur vaporiser.

The leaf-mining maggot, the larvae of Tephritis onopordinis, proves very troublesome in certain seasons; the leaves should be rendered distasteful for egg-laying by spraying them with a Quassia and soft soap wash or a a nicotine spray. The benches or ground on which the plants stand should also be sprinkled with fine ashes soaked with paraffin.

COSMOS BIPINNATUS.

This annual is very useful for furnishing the conservatory during the autumn. I refer here to the ordinary late-flowering types and not to the newer early-flowering varieties; in the fact that they flower too late to be of much use out-of-doors lies their value for our particular purpose, viz., a supply of decorative material for the conservatory when flowering subjects are valuable. Seeds should be sown indoors during April and the young seedlings should be pricked off when fit to handle, giving them plenty of room, and growing them in cool conditions, otherwise they quickly draw up weak and spindly. They are strong-growing and free-rooting plants, therefore should be potted on as they require it until they are in their flowering pots, which should be ten inches in diameter. The plants should be stood outdoors during the summer, partly plunging the pots to prevent losses during wind storms. Cosmeas should be treated in every respect like greenhouse Chrysanthemums; they should be well staked and tied, as their lateral shoots are very apt to get blown out. Their graceful habit makes them very useful for large groups in the conservatory and they are also ideal subjects for furnishing a supply of cut flowers. *J. Coutts.*

THE WINTER OF 1923-24.

In 1923 frost occurred early, on November 7, when 7° were registered here, and continued every night of that month, the amount ranging from freezing point to 14° on November 25, 20° on the 26th of that month and 16° on the 27th. Such frost was severe for so early in the season and did a great deal of damage to the young shoots of many plants. Owing to the cold weather in May and June of last year many plants did not develop their growth at the proper time and the shoots were not sufficiently ripened to withstand these early winter frosts. Shrubs such as Olearia macrodonta, Carpenteria californica, Benthamia fragifera—which has suffered very much on our cold soil—and Veronica buxifolia were much damaged, notwithstanding these plants have withstood the winter for over twenty years. A specimen of Dracaena indivisa planted about one hundred and fifty yards from a stream of water has been killed, whilst another specimen planted on higher ground—about fifty feet elevation—is looking wonderfully well. Many Rhododendrons have been damaged and I doubt if some of them will recover; the foliage is very brown and dried up. Some of the broad-leaved Rhododendrons, such as Elsie and Mansellii have suffered very much; some of the crosses with R. arboreum are very brown in the leaf and other types are not looking too well.

Evergreen Azaleas have been badly damaged and many will not recover. Old established plants of the purple A. amoena has withstood the cold best of all. These specimens have been planted out for over twenty years; the only protection they have is a belt of trees and shrubs that keeps the north-east winds from them. Another group of the same variety is planted on a little higher ground and exposed to north-east winds, and it is surprising how well these particular plants have withstood the winter. It will not be before the summer that we shall know the full extent of the winter's damage to plants.

Gardeners have been handicapped this winter and spring in such outdoor operations as planting shrubs, fruit trees, etc. It was impossible to make much progress with this work from early November, 1923, to the second week in January of this year, owing to the severe frost commencing at the beginning of November, followed with frost and heavy rains in December. From the second week in January to the second week in February the weather was much more open and favourable for outside work, which was taken advantage of. Since then, to April 19, we had cold winds, frost, snow and sleet; the rainfall was not up to the average for the three months. February was comparatively dry; only 0·73 inch of rain fell in that month. The number of frosty nights since the beginning of November to the 20th of April was ninety-nine out of a total of one hundred and seventy-two; the amount of frost varied from freezing point to 20°, while gardens in lower districts registered a few degrees more.

Turning now to the other side of the question, the frost has done much good in kitchen gardens and fruit plantations, especially where the soil is of a heavy nature. I do not suppose any readers remember a better spring for the working of ground and the sowing of seeds for a great number of years. The nearest to it that I remember was in the winter 1889—1890, when there were nine weeks of very severe weather, commencing at the end of November, 1889, and continuing to the last week in January, 1890, without a break. That winter also was followed by a favourable spring for working the ground. The winter of 1895 was also severe, frost commencing in January and continuing until March, yet it was followed by a good season although the crops were a little late. *E. Neal, Tilgate Gardens, Crawley.*

VEGETABLE GARDEN.

PERPETUAL SPINACH (BETA CICLA).

Winter Spinach, Broccoli, and even many of the hardy Kales have perished during the severe winter, but Perpetual Spinach is proving most valuable for furnishing a continuous supply of leaves, which make an excellent Spinach.

The seeds from which our plants were raised were sown in August in rows one foot apart, and the plants were thinned to a distance of six or eight inches asunder in the rows. Any good garden soil will suit this Beet. The plants may easily be protected with litter or dried Bracken Fern during severe weather. When the leaves are ready for gathering they should be removed to ensure a continual supply.

CORN SALAD OR LAMB'S LETTUCE.

From a sowing of seeds made in August last we have been gathering supplies of this hardy salad, which is much appreciated at this season. It will succeed in any kind of good soil, but the situation should be dry.

The seeds should be sown in drills made six inches apart and the seedlings thinned to six inches asunder in the rows. The young plants which are removed may be transplanted and these will provide a successional crop.

A portion of the crop may be retarded by lifting the roots and heeling them in under a north wall. Two species are cultivated, the Round and the Italian, Valerianella olitoria, and V. eriocarpa respectively. *C. Ruse, Hyde Gardens, near Luton.*

FINNOCHIO OR FLORENCE FENNEL (FOENICULUM DULCE, D.C.)

Although this plant has been known and its culture well understood for more than two centuries, and seedsmen have catalogued it all the time, its culture has made very little headway either in Britain or France, which is the more remarkable seeing that it is a very pleasant cooked vegetable and salad, easily prepared for the table, very digestible and healthful.

Perhaps the fact that it is described as a native of Italy has caused horticulturists to question the possibility of its success in Britain at any rate, but that reason is hardly valid in France. It is unquestionably popular in Italy to-day, and its good qualities have been most highly developed in that country. Although the greatest improvements in the plant have been made in Italy, and Dodonaeus and Clusius give it the Italian name Finnochio, Miller, quoting from Plukenet's *Almagestum*, 1696, gives the name as F. dulce azoricum and states "this sort is originally supposed to have come from the Azorean Islands; it has long been cultivated in Italy as a salad herb, and it is now cultivated in a few gardens in England." Justice, writing at the same date, describes its culture in Scotland also.

In De Candolle's *Prodromus* the matter is fully threshed out and he appears to accept the Azorean parentage. Unlike the other varieties of Fennel (which Linnaeus classes under Anethum) this is an annual plant, and if the seeds are sown in May and there is fine warm weather during the summer, a supply may be maintained in sheltered districts from July to the end of September. The plant produces very short stalks which swell out just above the ground to 4 inches or ·5 inches in breadth and 2 inches in thickness. This is the part which is eaten after being blanched, either as a raw salad with oil, vinegar, etc., or as a boiled vegetable.

The seeds should be sown in drills 1½ foot apart, the seedlings thinned to about 6 inches asunder and the plants plentifully supplied with water. When the knotted joints are about the size of a hen's egg draw the earth up around the plant. This should be done gradually as the plants develop, and they will soon become blanched and tender. It resembles Celery in flavour, but is sweeter and of a more delicate odour.

The other varieties of Fennel, being officinale plants only, need to be noted here very briefly. The wild, bitter kind F. vulgare makes an excellent sauce for fish; the stem of the long, sweet F. officinale, broken up and served up as a side dish raw is highly esteemed by the Neapolitans; while F. piperitum furnishes the famous Carosella de Naples. F. vulgare is a perennial, the other kinds may be treated as annuals. *S. B. Dicks.*

HARDY FRUIT GARDEN.

PEARS.

Last year the Pear crop was the worst that I ever remember; many trees failed to produce a single flower, and only a few varieties bore very light crops. This year the branches of Pear trees are studded with strong, promising flower buds, so that if the weather proves favourable there should be a very heavy crop of fruit this coming season. To obtain Pears of good size and flavour the trees should not be over-cropped, and this should be remembered if the promise of a bountiful crop is fulfilled; a moderate crop will also give the trees a better chance of building up strong fruit buds for the following year.

The thinning of the fruits should be done early when they are quite small and again after it is seen which are the best and the most likely to grow into large specimens.

Large varieties will need to be more freely thinned than smaller sorts, at the same time taking into consideration the strength and health of the individual trees.

Cordon trees and others that are growing in light, warm soils will be greatly benefited by liberal dressing of decayed manure placed over the roots and liberal supplies of water in dry weather.

Cordon Pears are usually grafted on the Quince stock the roots of which grow near to the surface and are very liable to suffer from drought; these trees should be amongst the first to receive attention as regards mulching, etc. All trees that have been lifted or root-pruned recently should be only sparingly cropped compared with other trees whose roots have not been disturbed. *H. Markham, Wrotham Park Gardens, Barnet.*

HOME CORRESPONDENCE.

Woodlice.—The other day when some boxes of Lettuces were being moved from a vinery to cooler quarters, I was surprised to observe what at first sight appeared to be quantities of seed-pods, about the size of Aubrietia seed-pods, had collected under these boxes. On closer examination, however, I discovered that what I had mistaken for seed-pods were the dead bodies, or at least the scaly parts, of hundreds of woodlice ("Slaters" we call them in Scotland), and I am anxious to know if anyone can suggest by what agency they were killed and collected where I found them. The boxes mentioned had only been in that position for about a fortnight, and were resting on two wooden rails to keep them clear of the vine border, so there was room for mice and voles to run under them, but so far this season we have not been troubled with either of these animals. The question often asked is "How can I get rid of woodlice in greenhouses?" If we could solve the above mystery we would be in a fair way to answer that question. I would add that about a week previous the border had a dressing of sulphate of ammonia, 1-oz. to the square yard, but I have never heard of sulphate of ammonia being poisonous to woodlice. *A. T. H., Ayrshire.*

Ropner Park, Stockton-on-Tees.—I was very interested in reading the short biography of Mr. W. A. Jenkins in *Gard. Chron.*, April 5, p. 184. I have known him over a long period and have periodically had the pleasure of inspecting and enjoying his work. Without doubt the summer display in Ropner Park compares favourably with that in any other park in this country, notwithstanding the many difficulties with which Mr. Jenkins has to contend. The sub-tropical bedding in 1922 was magnificent; it was planted by the side of the lake and enclosed in a dwarf, well-kept hedge of Golden Privet. Such subjects as Coleus, Fuchsias, Cockscombs, Celosias, Heliotrope, Hydrangeas, Begonias and Palms were arranged with artistic taste. All other phases of horticulture were carried out equally well in this park. Shrubs are a feature. The bowling greens and tennis courts under Mr. Jenkins' management are amongst the finest in the county. Huge masses of choice Delphiniums, Campanula pyramidalis, C. persicifolia, early-flowering Chrysanthemums, Violas, Roses, Larkspurs, Phloxes, Pentstemons, Antirrhinums, etc., are artistically and harmoniously arranged, all combining to afford enjoyment to the public. Mr. Jenkins is a fine type of the old school of gardeners, and is ever ready to do a friendly action. Several of the employees in the Stockton-on-Tees parks have been with him since his appointment in 1895, including the foreman, Mr. R. Cummins. *Ernest Todd.*

Silene acaulis, Elliott's variety.—I shall be glad if you will allow me to correct an error which crept into your report of the last R.H.S. Show (page 262). Among the Awards of Merit given by the Floral Committee, Silene acaulis, Elliott's variety, is stated to have been shown by me. The well grown pan of this plant was not either grown or shown by me, but came from the Hon. Vicary Gibbs. In looking through the Aldenham exhibit I noticed this specimen pan and suggested that it should be put up before the Floral Committee, with the pleasing result that it gained an Award of Merit. The award therefore goes to Mr. Vicary Gibbs and not to me, and although I was responsible for introducing the plant to cultivation and had the pleasure of giving Mr. Gibbs his original stock of it, I fully realise that it was cultural skill in producing the large well-flowered specimen quite as much as the distinctness and charm of the variety that secured the plant the award; hence this note. At the same time it may interest lovers of Alpines to know the origin of the plant. I collected it at Mt. Cenis in 1920. I was ranging over a huge expanse of most beautiful Alpine lawn studded with, among other things, Viola calcarata, Gentiana verna, Ranunculus pyrenaeus, Anemone vernalis, and Silene acaulis. The Silene was growing in tremendous profusion, and it was not the well-known, small-flowered, almost stemless form which is so profuse in flower in the Alps and so shy-flowering in gardens, but was more akin to, if not actually, the variety known as saxatilis, with larger flowers, and stems about ½-inch high (not an inch, please, as reported). And among many thousands of plants that I passed I suddenly came upon a great mass, whose beauty and distinctness arrested from many yards away. All around the turf was dappled with the rather chalky pink of typical Silene acaulis, whilst this one plant was pure, clear, soft pink—an unusual colour in a wild flower; the shade one would expect in a very sophisticated, very beautiful, pale pink Polyantha Rose. Of course I dug out a goodly chunk, and in due course it was established here. As a garden plant it has exceeded all expectations. It is a good grower and a free-flowerer, and throughout the summer it seems to be seldom out of bloom. *Clarence Elliott, Stevenage.*

The Injurious Effects of the Past Winter.—The very interesting article on the injurious effects of the past winter in the garden, by Mr. G. Abbey, prompts me to summarise the effects from another quarter. Knowing the calcareous nature of that portion of Hampshire to which he refers, and the injurious effects of even an average winter in that locality, I fully sympathise with your correspondent. The soil conditions in this district are far more favourable in a winter like the past. A sandy soil predominates, chiefly over a subsoil of greensand, with a tendency in some parts to form a strata of clay deposit. This forms a porous soil, but rather closely packed, and consequently frost-resistant. The close proximity of a large lake, and adjoining bogland on two sides, are somewhat unfavourable. The rainfall from October to March 31 was 1·55 inch. The effects of the unusually severe season were noticed most in the kitchen garden, but owing to a close system of cropping I was obliged to place a large portion of my winter's supply of Brocoli under the sheltering influence of a cultivated orchard of old Apple trees, with the result that we had an almost unbroken supply of heads of Autumn Protecting, with a succession of Winter Mammoth until well in January. Brussels Sprouts under the shelter of a thick Laurel hedge gave good returns until well into March, and New Year Savoy finished on February 14. Purple Sprouting and Snow White Broccoli are at present giving us more than sufficient material for requirements, while Whitsuntide will carry on the succession until late in May. At present we are cutting Harbinger Cabbage (July sown) of which only ten plants had to be replaced; curiously enough from a seed bed adjoining, from whence they come, only about 300 plants survived. Spinach Beet has given us ample supplies. Choisya ternata on a south border has almost given up the desire to survive, while, on a western aspect, a large specimen is unscathed. Bignonia radicans is none the worse; Ceanothus Gloire de Versailles, although only recently established, is uninjured, whilst a protected Cordyline indivisa, unsheathed from its cover, is quite happy. Wallflower Orange Bedder and Cheiranthus Allionii are in splendid condition and need no replenishing; Sweet Williams are somewhat spotted, but are well filled with robust growth; Gunnera manicata has lifted its artificial covering with an unusual growth and robust stems. *S. J. Channing, Rake Manor Gardens, Milford, Surrey.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Friday, April 25.—Committee present: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, H. Astley Bell, A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, J. Evans, G. Giles, J. Howes, J. Jackson, A. Keeling, E. W. Thompson, and H. Arthur (Secretary).

First-Class Certificates.

Odontoglossum Everest (*Princess Mary* × *Mirabeau Mastiff*), a flower of large size, measuring almost six inches across; the sepals and petals are heavily spotted with chocolate-brown on a white ground. The large lip has a bright yellow crest. *O. crispum Albatross*, a flower with broad, white, frilled petals, the sepals slightly flushed with rose; the white lip has a heavy blotch of chestnut-brown. Both these were shown by Mrs. Gratrix.

Odontoglossum The Prince (*parentage unknown*). A variety with large, well-shaped flowers, richly blotched and spotted violet-purple on a white ground. From S. Gratrix, Esq.

Odontoglossum Aglaon majesticum. The flower is heavily blotched with reddish-chocolate on a white ground; the large lip has a deep yellow crest. From H. T. Pitt, Esq.

Awards of Merit.

Odontoglossum Fascinator aureum var. Starlight; Odontioda Coronation, Orchidhurst variety; Cattleya Osprey (*speciosissima Stanleyi* × *Isobel Sander*). From S. Gratrix, Esq.

Odontoglossum crispum Lorraine; Odontioda Zarina (*spectabile* × *Odta. Chanticler*); *O. Penelope* (*Rolfiae* × *Olympia*), from H. T. Pitt, Esq.

Odontoglossum promerens var. Colossus; Odontioda Beta var. Sultan. From Mrs. Gratrix.

Brasso-Lælio-Cattleya Roumania L.-C. Canhamiana Rex × *B.-C. Queen Alexandra*), from J. McCartney, Esq.

Odontioda Cainiae (parentage unknown), from P. Smith, Esq.

Groups.

S. Gratrix, Esq., West Point (gr. Mr. J. Howes), staged a group of Orchids for which a Gold Medal was awarded.

A Silver-gilt Medal was awarded to H. T. Pitt, Esq., Stamford Hill (gr. Mr. F. W. Thurgood), for a group in variety.

Large Silver Medals were awarded to Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns); A. Hanmer, Esq., Buxton (gr. Mr. G. Giles); J. McCartney, Esq., Bolton; and Messrs. J. Cypher and Son, Cheltenham, respectively, for groups of miscellaneous Orchids.

ORCHID CLUB.

The meeting of the Orchid Club, held on May 2, was noteworthy for the fine examples of Odontoglossums and Odontiodas shown.

Diplomas of Merit.

Odontoglossum Fascinator aureum, Craven Moore's var. (*O. Adrianae* × *O. crispum*). A beautiful, light pure yellow flower of good shape and habit. All the segments are a clear self yellow; the lip is yellow lightly blotched with red.

Odontioda Red Cross, Craven Moore's var. (*Oda. Cocksonioe* × *Odm. ardentissimum*). A medium-sized flower of good shape, having all the segments a rich, deep terra-cotta red with a narrow white margin. The lip is white with a few terra-cotta red blotches. Both these were shown by Dr. F. Craven Moore.

Groups.

Dr. F. Craven Moore, Manchester, staged a grand group of magnificently grown Odontiodas and Odontoglossums. The plants, of which there were over fifty in the group, were all selected varieties and carried full spikes. The body of the group was filled in with Dendrobiums.

B. J. Beckton, Esq. (gr. Mr. W. A. Stewart) exhibited a mixed group among which were examples of Dendrobium Arachnites, Nanodes Lankesteri, Bulbophyllum Sillemianum, Cirrhopetalum Roxburghii, Epidendrum Staffordii, and various Masdevallias and Miltonias.

Sir William Thom, Blackburn (gr. Mr. R. Williams), staged a small group of Odontglossums, including a fine variety of O. Pescatori, O. Princess Mary, and two good unnamed seedlings.

Messrs. A. J. Keeling and Sons, Bradford, showed fine examples of Lycaste Mrs. H. Smith, and the interesting Masdevallia O'Brieniana.

Messrs. Mansell and Hatcher, Rawden, Leeds, showed Brasso-Cattleya Oberon, Cattleya Schröderae and the beautiful Odontoglossum crispum var. Venus.

NATIONAL AURICULA.

In conjunction with the R.H.S. Fortnightly Show at Vincent Square, Westminster, on the 29th and 30th ult., the Southern Section of the National Auricula Society, held its annual exhibition, and although competition was not very keen there were, nevetherless, some excellent specimens ex-hibited.

Mr. J. Douglas showed the best specimen Show and Fancy varieties with perfect plants of Grand Dame, a grey-edged flower; and Ingelesse, a yellow self bloom. Mr. J. T. Bennett Poë secured the premier award for the best Alpine variety and exhibited the variety Roxborough.

In the class for twelve dissimilar Auriculas Mr. James Douglas, Edenside, Great Bookham, was the sole competitor and was awarded first prize. He showed fine examples of Scarlet King, scarlet self; Sunflower, yellow self; Lord Steyne, maroon self; Grand Dame, grey edged; Brig of Ayr, green edged; and Shelma, white edged.

For two specimen Auriculas, dissimilar, Mr. A. S. Hampton, Reading, was the only exhibitor in this class and showed Shirley Hibberd, green edged, and Harrison Weir, crimson self.

The class for a single specimens of a self variety attracted two exhibitors and Mr. J. T. Bennett Poë, Ashley Place, S.W., was awarded first place with a perfect plant of Harrison Weir. Mr. A. S. Hampton was second.

Mr. James Douglas was again the only exhibitor in the class for twelve dissimilar Alpine varieties for which he was awarded first prize. The varieties included fine specimens of King George, gold centre; Picotee, white centre; Heroine, white centre, and Glow, gold centre.

There were four competitors in the class for six dissimilar Alpine varieties and Mr. J. T. Bennett Poe led with a perfect half-dozen plants. The varieties shown were St. Vincent, Argus, Jack Parton, Prime Minister, Roxborough and Mrs. J. Douglas. Mrs. Groves, Brondesbury, was second, followed by Mr. J. G. Baxter, Beckenham.

Mr. J. T. Bennett Poë also led in a similar class for four varieties and showed St. Vincent, Argus, Prime Minister and Roxborough. Mrs. Groves was placed second.

For a single specimen of Alpine Auricula with gold centre, Mrs. Groves was first with the variety Triumph. Mr. J. T. Bennett Poë was second with Prime Minister.

Of the six competitors in the class for a white-centred Alpine Auricula, Mr. J. T. Bennett Poë won the first and second prizes with two beautiful plants of Roxborough, followed by Mrs. Groves, who showed the variety Argus.

In the class for six dissimilar Alpine varieties, restricted to amateurs who grow their own plants, Mrs. Groves led with fine specimens of Argus, Miss Lowinsky and Beatrice. Mr. A. S. Hampton followed a close second.

Mr. J. Douglas, the only exhibitor in the class for twelve Fancy varieties, was awarded first prize; he exhibited perfect plants of Ingelesse, yellow ground; Mandarin, yellow self; Annot Lyle, pink self; Fireman, scarlet self, and Innocence, pale pink self.

Mrs. Groves gained first prize for a single specimen of a fancy variety and showed Mrs. Groves, yellow self. Mr. A. S. Hampton was second.

For a group of any species or varieties of Primulas or Auriculas arranged in a box or basket not exceeding twelve superficial feet, Mr. G. W. Miller, Clarkson Nurseries, Wisbech, was first, and showed a tasteful arrangement which included single and double Primroses, Polyanthuses of many shades of colour; and, among species and hybrids, P. Juliae splendens, P. Crispii, P. Mathiolii, and P. Aileen Airoon. The same exhibitor was the competitor in the class for twelve specimens of fancy Polyanthus varieties, and showed exceptionally fine specimens of Fred, purple and yellow; Scott, an almost black flower edged with Primrose-yellow; Delight, golden-yellow; Jim, rose-purple with yellow centre; and White Queen, white with orange centre. For a single specimen of a fancy Polyanthus the same exhibitor was awarded first prize for a fine plant of Orange Queen, and he was also premier prize winner in the class for twelve dissimilar single Primroses, as well as for six clumps of double Primroses and for a specimen single Primrose.

TRADE NOTE.

At a recent meeting of the Land Union Council the following resolution was passed:—"The Council of the Land Union is of opinion that, until the future of British agriculture is dealt with as a whole, it is useless to proceed with the Agricultural Wages Bill, which could only result in calling upon farmers to pay an uneconomic wage, so causing unemployment among agricultural workers."

SCHEDULES RECEIVED.

Royal Tunbridge Wells Horticultural Society.—Exhibition to be held on Tuesday and Wednesday, July 1st and 2nd, in the Calverley Grounds, Tunbridge Wells.—Secretary, Mr. R. T. Lade, 29, Hill View Road, Rusthall, Tunbridge Wells.

Canadian Gladiolus Society.—Third annual exhibition to be held at the Ontario Agricultural College, Guelph, Canada, on August 20th and 21st, 1924.—Secretary, Prof. A. H. Tomlinson, Ontario Agricultural College, Guelph, Ontario.

National Dahlia Society.—Exhibition to be held on Wednesday, September 10th, at the Royal Horticultural Hall, Vincent Square, Westminster.—Secretary, Mr. W. Stephens, The Limes, 17, Elers Road, Ealing, W. 13.

Buxton and District Chrysanthemum Society.—Nineteenth annual exhibition to be held in the Pavilion Gardens, Buxton, on Wednesday, November 19th.—Secretary, Mr. A. Nevil, 1, Victoria Avenue, Holker Road, Buxton.

THE WEATHER IN APRIL.

The weather of April was deficient in the amount of sunshine, rainfall, and also temperature. Bright sunshine totalled 120 hours, or an average of four hours daily (a distinct deficiency). The two brightest days were the 16th and 17th, with 11.6 and 11.4 hours respectively, the 19th and 24th being absolutely sunless, with the 30th nearly so. The rainfall was again below the average, only 1.62 inch being collected. The 24th yielded the most, viz., 0.3 inch, and with the exception of the 10th and 26th, the other rainy days gave small amounts. The highest maximum temperature of 58° was recorded on the 7th and 25th. The lowest minimum of 32° in the screen was reached on the 2nd, 10th, 12th, and 17th (the 10th, having also the lowest maximum, was the coldest day of the month). This gave an absolute range of 26 and a mean temperature of 42°, which is under the average for April. On the grass, the lowest reading took place on the 17th, viz., 25° (7° of frost), while there was in all nine days of ground frost. Barometric pressure (at no time phenomenally high or low) was greatest on the 1st—30.413 inches, and the lowest of 29.258 occurred on the 27th. The prevailing winds, which were almost moderate, came from North and East. Hail occurred on the 9th; snow on the 10th, which lay on the ground from 7.15 till noon, and hail on the 12th, which lay for a short time. A rainbow was observed at 5.30 on the afternoon of the 15th. *John Davidson, Meteorological Station of the St. Andrews Provincial Committee at the Training College Gardens, Mayfield, Dundee.*

Obituary.

H. Morgan Veitch.—It is our painfully regrettable duty to record the untimely and sudden death of Mr. H. Morgan Veitch, one of the best known personalities in the world of horticulture and a most highly esteemed gentleman. Mr. Morgan Veitch was at his office in Norfolk Street, Strand, on Wednesday, April 30, and after completing his morning's work, he collapsed on leaving his office and died with appalling suddenness. The son of the late Mr. Arthur Veitch (of the famous Chelsea nursery firm), Mr. Morgan Veitch has always been associated with horticultural activities, and in his practice as a solicitor made a special feature of all legal matters affecting horticulture in general and the horticultural trade in particular. He was solicitor to the Chamber of Horticulture, Central Chamber of Agriculture, Federation of British Growers, the Horticultural Trades' Association, the British Florists' Federation and the Gardeners' Royal Benevolent Institution, and it was only last year that he presided over the annual meeting of the latter charity. Born in 1870, Mr. Morgan Veitch was educated at St. Leonards School and Malvern College. From the first he gave evidence of exceptional ability and in 1891 he passed his solicitors final examination and became Honoursman and Kent Law Society Prizeman. On several occasions he wrote extensively on commercial horticultural and agricultural law, and over a period of many years he had contributed valuable articles on legal matters affecting gardeners and horticulturists generally, to the columns of the *Gardeners' Chronicle*, and also contributed most of the replies to legal questions submitted by our correspondents. Mr. Veitch was a fine athlete and it is not many years since he excelled in swimming, football and lawn tennis. At one time he was a member of the Kent County Football team and he was an old member of the All-England Lawn Tennis Club. In all he undertook Mr. Veitch proved his great ability and even as a volunteer he not only fulfilled his duties as captain in the 2nd (now 5th) Volunteer Battalion of the East Surrey Regiment, but he studied war tactics and passed with distinction at Chelsea Barracks. Of fine physique and with a commanding personality Mr. Morgan Veitch appeared to have a long and useful future before him, but the end came with tragic suddenness. Endowed with a genial manner and a gift of ready utterance, it is small wonder that Mr. Veitch made a wide circle of friends, all of whom will deeply deplore his sudden demise. In all good works Mr. Veitch showed the keenest sympathy and interest, and notwithstanding his onerous duties as solicitor he found time to do good work on behalf of horticultural charities, to care for lads who had little or no early advantages, to advocate temperance, and to address meetings for the purpose of inculculating those Christian principles he so admirably practised throughout his life. We offer our deepest sympathy to the widow and family, whose consolation will be that the husband and father was as good as he was clever. The funeral took place at Seaford, on Monday last, following a service in St. Clement Danes Church, Strand.

THE LATE MR. H. MORGAN VEITCH.

Brian Wynne.—We much regret to announce the death of Mr. Brian Wynne, Secretary of the Royal Gardeners' Orphan Fund; he died on the 2nd inst., at Feltham, after a long and painful illness. Mr. Wynne came of a gardening family, for his father was for a long time gardener to Miss S. E. Darwin, sister of Charles Darwin, at The Mount, Frankwell, Shrewsbury. Mr. Brian Wynne assisted his father after leaving school, and in March, 1866, entered the gardens of the Royal Horticultural Society at Chiswick, under a scheme initiated by the Council for the education of young gardeners. Young Wynne soon showed his abilities and in the following year he was appointed foreman in the fruit department. He was very assiduous in studying his profession and successfully passed examinations in fruit-growing, vegetable-growing, and floriculture, gaining the R.H.S. First Class Certificates in each of these subjects, as well as the Society of Art's second prize for floriculture, the first prize being won by the late Mr. F. W. Burbidge. In 1868 Mr. Wynne accepted an appointment in the editorial department of this Journal, under the late Dr. M. T. Masters, and remained as sub-editor for a period of sixteen years, leaving to establish a new gardening paper under the title of *The Gardening World*. This venture did not prove successful and in 1895 he resigned his position as manager and editor and went into business on his own account. During all this time he was prominently associated with various societies and institutions, and was for two years chairman of the National Chrysanthemum Society. He was one of the founders of the Royal Gardeners' Orphan Fund and during the period when Mr. A. F. Barron was secretary, he gave much of his time to that charity, both as a member of committee and in assisting with the secretarial work, so that it was not surprising that when Mr. Barron retired in 1899, Mr. Brian Wynne was unanimously elected to fill the post. Wynne had a remarkable faculty for remembering dates and events and it was surprising how readily he could refer to any event connected with the *Gardeners' Chronicle* which had taken place during his tenure of office, and he also remembered the smallest details connected with the history of the orphans assisted by the Royal Gardeners' Orphan Fund. He had a mastery of detail and his secretarial duties were carried out in the most efficient manner. For nearly two years he had enjoyed very indifferent health, and for several months past had been confined to his bed. Although so very ill and suffering great pain he was always cheerful, and looked forward to resuming his duties, but the end came peacefully and very suddenly, for he passed away in a comatose condition, without any pain, almost in sleep.

CATALOGUES RECEIVED.

BARR AND SONS, 21, King Street, Covent Garden, W.C.2.—Flower and Vegetable Seeds.

W. W. JOHNSON AND SONS, LTD., Boston, Lincs.—Flower Seeds (wholesale).

MERRYWEATHER AND SONS, LTD., 63, Long Acre, W.C.2.—Garden Hose.

ANSWERS TO CORRESPONDENTS.

DISEASED PEACH SHOOTS: *W. J.* The Peach shoots are attacked by the fungus Cladosporium carpophilum. All diseased shoots, similar to the specimen sent for examination, should be cut out and burnt and the tree sprayed when the fruits have set, with Bordeaux mixture containing a little soap.

DAMAGED DAFFODIL FLOWERS: *E. C.* There is no fungus present on the flowers, and may be the damage to the perianth segments has been caused by the foliage whipping against the blooms in rough weather.

FREESIAS NOT FLOWERING: *J. L. W.* An examination of the corms does not reveal the presence of any disease or pest, and it is difficult to account for their not rooting. You do not state how the corms were harvested; it is necessary, after the foliage has died down, to lift the corms and thoroughly ripen them on the greenhouse staging, in a temperature of from 65° to 70°, for a period of three weeks.

THE LATE MR. BRIAN WYNNE.

MANURE FOR NARCISSUS BULBS: *B. O.* If your soil is deficient in lime this material may be applied to the ground when it is being prepared for the bulbs. If the soil is light it is better to use chalk, giving a dressing at the rate of about one ton to the acre; if heavy employ burnt lime at about half the above rates. Should you you intend leaving your bulbs in the ground for two or more years, bone meal or bone flour should be incorporated with the soil during digging operations and applied at the rate of five cwts. to the acre. This manure contains both soluble and insoluble phosphates, and as the latter are not readily available, the plants will benefit by the dressing in the second and third years after planting. A complete manure should also be used when the bulbs are planted, and a good fertiliser is one consisting of one part sulphate of ammonia, three parts super-phosphate, and one part of sulphate of potash. The ingredients should be mixed thoroughly, and it is a good plan to sow it evenly along the drills or furrows when the bulbs are being set: the rate of application is about ten cwts. to the acre. The same manure should also be used the following year, applying it at the above rate and scattering it over the soil in the autumn: it should then be pricked in by means of a fork.

Communications Received.—A. H. M.—H. E. S.—C. R. E.—J. W.—H. P. K.—Dr. R.—A. G.—W. E. T.—R. M.—S. S.—H. M.—W. R. W.—F. W. J.

THE Gardeners' Chronicle

No. 1951—*SATURDAY, MAY 17, 1924.*

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 55·3.

ACTUAL TEMPERATURE :—

Gardeners' Chronicle Office, 5, Tavistock Street Covent Garden, London, Wednesday, May 14, 10 a.m.: Bar 30.1°; temp. 60°. Weather, Sunny.

A Spray Calendar.[*] MESSRS. BRITTON AND CLINTON have prepared a very useful calendar of spraying operations for the control of insect and fungous pests. The first part of the calendar consists in directions for preparing insecticides and fungicides. Beside the usual materials—lime-sulphur, Bordeaux mixture, lead arsenate, etc., the authors give some useful recipes for use for the destruction of pests other than those of fruit and vegetable crops. Thus, for the control of flies they recommend one tablespoonful of commercial formalin, one cupful of milk and water (equal parts), mixed and poured into a flat plate with a slice of bread in it. Those who employ this means of destroying flies will probably be well advised to add some harmless colouring matter in order to notify, as a warning, that the mixture is poisonous. Ants may be destroyed by means of arsenate of soda (125 grams), sugar one pound, honey one tablespoonful, water one quart. The arsenate of soda and the sugar are boiled with the water until they are dissolved. The honey is then added, and when cold the liquid is poured into shallow dishes in which are placed pieces of bread or sponge. With respect to dusting *versus* spraying, the authors state that experiments in Connecticut indicate that a larger percentage of good fruit is obtained by spraying than is to be had by dusting. The latter serves to keep down insect pests, but is less efficacious as a preventive of fungous attack than is spraying. As to cost, although dusting saves labour the cost of materials is higher than is that of substances used in spraying. Those who wish to experiment with the use of dusting materials in orchards may try flowers of sulphur in air-slaked lime, fifteen parts in a hundred, lead arsenate ten parts. In order to make the dust effective against sucking insects two parts in one hundred of nicotine may be added. For aphis, kerosene emulsion, two gallons of kerosene, one pound of common soap, and one gallon of water are recommended. The soap is dissolved in hot water, the kerosene added, and the liquid churned to a cream. It may be diluted with nine times its volume of water. As a preventive of Potato scab the authors recommend soaking uncut tubers for one hour in one pint of formalin dissolved in thirty gallons of water. For the thorough control of the insect and fungous pests of fruit trees, Messrs. Britton and Clinton advise one winter and at least three summer treatments. For our part we are inclined to be content with a less comprehensive programme. They recommend a winter treatment with lime-sulphur, and of the three summer sprayings the first applied just before the blossoms open should be with Bordeaux mixture, and in the two later—one just after the blossoms have fallen and the other two or three weeks later — either Bordeaux mixture or lime-sulphur with lead arsenate should be used; nicotine may also be added to control aphis.

National Rose Society's Membership.—At the recent meeting of the Council of the National Rose Society, it was reported that 796 new members had joined during the present year. This brings the total membership well on towards 12,000.

Conference in Edinburgh on Potato Culture.—Arrangements have been made for a Conference on the Cultivation of the Potato, to be held in Edinburgh in August, under the auspices of the Scottish Board of Agriculture and a number of Potato growers and merchants. At the opening meeting Mr. James Wood, a member of the Board, will give a review of what has been done by the Board in the registration and certification of immune varieties of the Potato. This will be succeeded by a paper by Professor Watson, Edinburgh University, on "Field Trials of Potato Varieties." In the afternoon there will be an inspection of the trials at the Board's Farm at East Craigs. On the following day, another field demonstration will be held at the same place, at which Mr. T. Anderson, the Director of the Seed-Testing station will explain the effects of degeneration and other matters affecting the various stocks. In the afternoon two papers will be contributed, one by Dr. G. H. Pethybridge on Potato Diseases, and the other by Mr. M. Drummond on Potato Breeding.

British Glasshouse Industry Conference.—The British Glasshouse Produce Marketing Association has arranged a Conference to be held in the Conference Hall, British Empire Exhibition, Wembley, on Monday, June 2. Full details are not yet completed, but the following are expected to take part in the proceedings:—The Rt. Hon. Noel Buxton, M.P., Minister of Agriculture; Sir Daniel Hall, Chief Scientific Adviser to the Ministry; Sir John Russell, Director of Rothamsted Experimental Station; W. G. Lobjoit, Esq., Controller of Horticulture; Sir Herbert Morgan, Director of many well-known firms; H. V. Taylor, Esq., Deputy Controller of Horticulture; Dr. W. F. Bewley, Director of Cheshunt Experimental Station; Geo. Jackson, Esq., J.P., President of National Federation of Salesmen; Geo. Monro, Esq., of Geo. Monro, Ltd.; C. R. Smith, Esq., President of National Federation of Retailers; John Poupart, Esq., of T. J. Poupart, Ltd.; Geo. Shawyer, Esq., of Lowe and Shawyer, Ltd., and others. Tickets for the Conference, including admission to the exhibition, may be obtained from the Secretary of the Association, Bank Cornea, Cheshunt, at the reduced price of 1/- each, but as the accommodation is strictly limited to five hundred seats and no one will be admitted to the Conference without a special ticket, early application is necessary.

Road Trees.—In reply to a question by Lt.-Col. Ashley, Mr. Harry Gosling stated in the House of Commons that he hopes an opportunity may present itself for introducing a short bill to enable the Road Fund to be used for road-side tree planting and to enable local authorities to spend money on the same object.

Sale of the Ashtead Park Orchids.—The collection of Orchids formed by the late Mr. Pantia Ralli, at Ashtead Park, Epsom, were sold during last week by Messrs. Protheroe and Morris and realised £3,400. The sale was continued over three days and in all one thousand lots were disposed of. The highest price—125 guineas—was obtained for a plant of Odontoglossum crispo-Solon Carminetta, which received the First Class Certificate of the Royal Horticultural Society on May 24, 1921. The sum of sixty guineas was obtained for the late Mr. Ralli's fine form of Odontoglossum St. George.

International Professional Horticultural Federation.—The International Conference of the Fédération Horticole Professionnelle Internationale will be held at the Connaught Rooms on May 28 and 29, when Mr. E. A. Bunyard, President for this year, will preside. The programme as at present arranged is that the delegates shall visit the Chelsea Show on Tuesday, May 27; opening of Conference at Connaught Rooms in the afternoon of May 28, to be followed in the evening by a banquet given by the Royal Horticultural Society at the Hotel Cecil, The Conference will be continued on Thursday morning, May 29, and there will be an official luncheon at the Connaught Rooms; the luncheon, also a dinner and cabaret show at the Trocadero in the evening are being arranged by the Chamber of Horticulture, Horticultural Trades' Association, British Florists' Federation and the Horticultural Club. On Friday, May 30, the delegates will visit the East Malling Experimental Station, where they will be entertained by the Ministry of Agriculture, and the Ministry will also entertain the delegates to dinner at Lancaster House in the evening of that day.

Visit of Queen Mary to Kew.—Accompanied by the Duchess of York, Her Majesty Queen Mary paid a private visit to the Royal Gardens, Kew, on Friday afternoon, May 9. Entering by the Lion Gate the Royal visitors first visited the Rhododendron Dell and passed from there to inspect the Magnolias in the Azalea garden. The large group of Pyrus floribunda on the mound near the Tropical Water Lily House next claimed attention, and from there the Queen and Duchess crossed to the Broad Walk to inspect the early-flowering Dutch Tulips. Cambridge Cottage garden was next visited, but before leaving by the main entrance the Queen took the Duchess of York to see the Maidenhair Tree planted by Her Majesty last November on the site of the Sun Temple.

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[*] *Bulletin* 244. Connecticut Agricultural Experiment Station, New Haven, Connecticut, U.S.A.

Glasgow and West of Scotland Horticultural Society.—At a meeting of the Directors held on Wednesday the 6th inst., a communication was read from the Royal Caledonian Horticultural Society inviting their support in conjunction with Dundee, Aberdeen, and North of England Societies in the movement towards the establishment of trial grounds in certain districts of England and Scotland by the Royal Horticultural Society. Opinion was unanimous that plants for trial should be tested not only at Wisley, but also in the Midlands, North of England, and at Edinburgh and Glasgow in Scotland. The meeting unanimously agreed to give its support to the scheme and also to approach the Council of the Royal Horticultural Society on the subject.

The "Botanical Magazine."—The new issue of the *Botanical Magazine*, volume cxlix, part ii, contains illustrations and descriptions of the following eleven plants:—Primula suffrutescens, tab. 8990, is distinct from other species by its woody rhizome which produces short branches on which arise the pretty inflorescences of deep rose or rosy-purple flowers. This species is said to be the choicest of the American Primulas and was introduced to this country in 1884, but apparently it is still rare in gardens. Schizophragma integrifolium, tab. 8991, is a shrub recently introduced from central and western China. The inflorescence is very interesting, for one of the flowers at the uppermost cyme forms an enlarged, sepal-like leaf of pale, yellowish-green colour. The plant has proved perfectly hardy in this country, and because of its fine foliage and striking inflorescence it is very suitable for training on walls and the trunks of trees. Hardenbergia Comptoniana, tab. 8992, is an old garden plant and was illustrated in the *Botanical Register* so long ago as 1818. It has twining growths bearing three or five foliolate leaves, in the axils of which develop racemes of rich violet-blue flowers. It is a native of Australia and is usually cultivated in this country as a greenhouse plant. Rhododendron Searsiæ, tab. 8993, is one of the numerous new Chinese Rhododendrons of recent introduction. The flowers are pale rosy-purple, almost white in the lower part. The plant is said to be not only a strong grower, but also very accommodating as regards soil and position, thriving in the Edinburgh Botanic Garden in much more exposed positions than many of the Chinese Rhododendrons. Lithospermum oleifolium, tab. 8994, is a low, prostrate shrub with very showy, blue flowers that, like those of many other members of the Boragineae, are a rosy-pink colour when young and fading. It is different from L. prostratum in the foliage, the lighter blue of the corolla and other details. This species is said to be very rare in gardens, but it is worthy of cultivation, for Miss Willmott, who supplied the material from which the plate was prepared, states that it flowers with her abundantly in May or June. Thryptomene thymifolia, tab. 8995, is an Australian Myrtaceous shrub, bearing numerous, small, almost sessile leaves and small milk-white flowers with orange-coloured centres. Like most members of the genus this Thryptomene is aromatic. Epidendrum cristobalense, tab. 8996, has fleshy flowers borne on long, pendulous racemes with stiff, leathery, bright green foliage developed on stems twenty to thirty centimetres long. The flowers are of a tawny colour and with an olive-green lip. Lavatera bicolor, tab. 8997, is a very attractive greenhouse plant and appears to have been in cultivation for a great number of years, although its identity was not known. It is said to be an excellent subject for pot culture, and pot plants of this Lavatera have been grown in the Temperate House at Kew for many years. Callistachys ovata, tab. 8998, is a very ornamental flowering shrub, hardy in some parts of the British Isles, although in most districts it would require the shelter of a greenhouse. The silvery foliage is very handsome, and the branches are terminated by heads of golden-yellow flowers. Cotoneaster salicifolia, tab. 8999, is closely allied to C. rugosa. It is perfectly hardy in this country and should make a welcome addition to flowering and fruiting shrubs. The berries are bright red and developed in corymbs like those of C. frigida, but the foliage is much narrower than in that species. The last illustration is of Amorphophallus cirrifer, tab. 9000, a new species with a leaf borne on a tall, mottled stalk and with a three-forked blade carrying numerous leaflets. The inflorescence precedes the solitary leaf, remains open about a week and, as in the case of most species of Amorphophallus, it has a very offensive foetid smell.

Mr. John Dick.—From one hundred and forty-five applicants Mr. John Dick, Superintendent of the Public Parks at Coatbridge, has been selected to succeed Mr. R. Moffat (who is retiring after nearly fifty years of service) as Superintendent of Parks at Newcastle-on-Tyne. Mr. Dick is the eldest son of the late Mr. J. C. Dick—who was for nearly twenty-five years gardener at Champfleurie, Linlithgow—and served his apprenticeship in the gardens of Culross Abbey, Dunfermline. He was journeyman at Alloa Park and also at Carberry Tower, and subsequently foreman at Overtoun, Dumbarton, and Panshanger, Hertfordshire. His first post as head gardener was at Gartur, Stirling, and his second at Taymouth Castle, where he remained for nine years, until this estate of the late Marquis of Breadalbane was placed on the market. After acting for some time as foreman to Mr. M. M. Hart, a landscape architect and recreation ground contractor at Glasgow, Mr. J. Dick became Superintendent of Parks at Coatbridge, where he has carried out many improvements in the three hundred acres of open spaces, including the creation of extensive flower borders, the laying down of tennis courts and bowling greens, and the making of new roads. He takes up his new duties at Newcastle during the present month and his charge will include the beautiful spot known as Jesmond Dene, Leazes Park, of about forty-two acres; Armstrong Park, which is sixty-two acres in extent, in addition to Nun's Moor, Elswick Park and Walker Park.

MR. JOHN DICK.

Maori Gravel Soil.—In certain districts of New Zealand are areas of ground known as Maori gravel soil. This soil, as its name implies, contains a large percentage of fine gravel and coarse sand. The ground is conspicuous by reason of its dark colour and the presence of small stones and coarse sandy particles in fairly constant proportions. Although of a sandy nature, this particular kind of soil is surprisingly fertile, and especially when compared with other sandy soils in the vicinity. Investigation has proved that the darkness of this Maori gravel is due to the presence of charcoal and it is suggested that the high fertility of these lands is owing to the Maoris having enriched them with vast quantities of the residue of burnt wood. Whilst the wood-ashes would supply potash and phosphates in considerable quantities, the supply of nitrogen would not be increased, but reduced, by the burning of the wood on the land, and it is suggested that fishes taken in times of plenty have been utilised by the natives for the fertility of such land. Another theory is that peat may have been taken from swamps and low-lying ground and incorporated in the soil. This information, which is taken from a pamphlet on the subject by Messrs. T. Rigg and J. A. Bruce,[*] seems to prove that the agricultural practice adopted by the Maoris agrees very closely to that of modern agricultural methods. The author's conclusions are "In regard to manuring, the Maoris definitely supplied phosphates, potash and lime, from the ashes obtained by burning wood on the soil. They did not make the mistake of manuring too heavily with nitrogenous manures, although it is a matter of surmise how the nitrogen supply of their soil was maintained. The incorporation of charcoal into the soil was a material advantage, as the whole soil was blackened. This resulted in a greater absorption of heat and an earlier crop. A similar practice is adopted by the market gardeners of the Biggleswade district, England, where soot is used in large amounts, partly for the sake of the contained nitrogen, and partly for the purpose of obtaining early crops."

Entertainment of Foreign Visitors.—In connection with the entertainment of the foreign delegates who will attend the Conference of the Fédération Horticole Professionelle Internationale on May 28th–29th, a special Entertainments Committee has been appointed to carry out the necessary arrangements. The members comprise representatives from the Chamber of Horticulture, Horticultural Trades' Association, British Florists' Federation, Horticultural Club, the Worshipful Company of Gardeners', and the Worshipful Company of Fruiterers. The sum aimed at for the entertainment of foreign delegates in accordance with the programme given in a previous paragraph was £250 and we are glad to learn that the greater part of this sum has already been given or promised. The contributions at present include: £15 15s. from the Worshipful Company of Fruiterers; £10 10s. each from the Worshipful Company of Gardeners, *Horticultural Advertiser*, E. A. Bunyard, Esq., Geo. Monro, Esq., J. S. Brunton, Esq., G. W. Leak, Esq., and W. E. Wallace, Esq.; £10 from the Horticultural Club; £5 5s. each from *The Fruti Grower, The Gardeners' Chronicle*, Messrs. Waterer, Sons and Crisp, Messrs. Stuart Low and Co., H. O. Larsen, Esq., Messrs. John Harrison and Sons, G. Arluison, Esq., Messrs. Barr and Sons, Messrs. Watkins and Simpson, W. R. Oldham, Esq., and the *Nurseryman and Seedsman*; £5 each from C. Engelmann, Esq., E. Stevens, Esq., Messrs. Lowe and Shawyer, and Messrs. Dobbie and Co.; £3 3s. each from J. H. Jolis, Esq., A. W. White, Esq., and R. W. Wallace, Esq.; £2 2s. each from C. H. Curtis, Esq., Frank R. Ridley, Esq., Messrs. Laxton Bros., H. T. Mason, Esq., and D. Ingamells Esq.; £2 from G. W. E. Loder, Esq.; £1 1s. each from R. H. Page, Esq., Orpington Nurseries, R. S. Cobley, Esq., G. Churcher, Esq. and Messrs. G. and A. Clark, Ltd.; and 10s. 6d. each from W. Hales, Esq., J. Cheal, Esq., R. A. Malby, Esq., and J. F. McLeod, Esq.

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[*] *The Maori Gravel Soil of Waimea, West Nelson New Zealand*, by T. Rigg, M.A., M.Sc., and J. A. Bruce Chemical Laboratory, Cawthorn Institute.

Sugar Immune to Mosaic Disease.—In view of the seriousness of mosaic disease of Potatos and other crops, the fact that a variety of Sugar Cane is immune to mosaic disease is one of great importance. The discovery and testing of the immune variety is described by Mr. V. Villamin* and should serve to stimulate the quest of immune varieties of other plants to this obscure disease.

New French Horticultural Journal.—The "Presses Universitaires," a publishing house of Paris, has brought out the first number of a new journal of horticultural and scientific interest, with the title of "*La Revue de Pathologie Végétale et d'Endomologie Agricole.*" It is intended to interest all who make a study of plant diseases and pests, and of the means for their destruction and prevention, and to form a liaison between scientists, entomologists, mycologists, and practical growers. It should be useful in disseminating a knowledge of the best and most up-to-date methods.

New Park for Dunbar.—A considerable time ago Dunbar Town Council approved of a proposal to acquire land at the north end of the town for an additional public park, and this proposal was approved by a plebiscite of the ratepayers. A special meeting of the Town Council was held a few days ago when Provost Aitken made the intimation that a generous donor, who wished to remain anonymous, had given the purchase price of £1,800. The Provost expressed on behalf of the Council and inhabitants their deep gratitude to the donor for this munificent gift.

Appointments for the Ensuing Week.—Tuesday, May 20: Croydon and District Horticultural Society's meeting; Winchester Horticultural Society's lecture. Thursday, May 22: Royal Botanic Society's meeting. Friday, May 23: Manchester and North of England Orchid Society's meeting. Saturday, May 24: Wakefield and Northern Tulip Society's show (4 days).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Blistering of Peach Leaves.*—Frost is not the direct cause of this evil; as far as my experience goes, blistered leaves are chiefly caused by the roots (not the branches or buds) being placed in uncongenial circumstances; damp cold roots produce watery unripened wood, with immature buds, which, in their turn, produce blistered leaves. This season, when disbudding a Nectarine, I was struck with the fact that almost every leader produced blistered leaves, and that the buds at the bottom of the shoot were almost all healthy. This tree is on an east wall; its roots are deep in an uncongenial soil, it does not ripen its wood well, and therefore (I think) the effect is blistered leaves, in proportion to the dampness and coldness of the autumn and unripeness of the wood. Two years ago I lifted two young trees from the same wall, which were in a very bad state. I took them to a south wall, kept their roots dry and shallow in a good loam, and they are now two of the most healthy trees in the garden. This season I lifted several old trees, which were very unhealthy. I found their roots in a bad state and I treated them in a similar manner. One or two of them are recovering; the others, I am afraid, were too far gone before the remedy was adopted, otherwise, I feel satisfied that this treatment would prevent the blistering of the leaves, and that placing the roots in congenial circumstances is the first and most important step towards restoring the unhealthy tree to fruitfulness and vigour. *J. Mundell.* [But *why* or *how* can roots produce the supposed effect?]. *Gard. Chron., May* 19, 1849.

Publications Received.—*Chrysanthemums: How to Grow Blooms for Exhibition and Home.* By James Wood. Obtainable from Mr. L. C. Philpott, 1, Watkin Road, Folkestone. Price 1s. 7½d., post free.

**Sugar*, Vol. 25, 7. New York, 1923.

NOTICES OF BOOKS.

The Flower Seeker.*

This small book of 184 pages is intended for those collectors of flowers who have no knowledge of botany, nor of the technical terms used in describing plants.

The flowers dealt with are those which one may expect to find during the spring and summer months; and spring and summer are terms that the collector must bear in mind when reading the synopsis. The sections of the book are grouped under seven headings relative to the habitat of the flowers, such as waysides, banks and hedgerows; fields, meadows and pastures, etc. Thus the user of the book must first study the arrangement of its contents, pay attention to the nature of the habitat, and then look down the synopsis till the heading applies to the situation in which the plant was growing. Under the synopsis for spring flowers those with four and five petals are arranged in groups respectively under white, yellow, red, blue, deep blue, purple, yellow-green, brown-green and brown. Other characters are taken in, such as two-lipped, and Pea flowers, or small ones arranged in spikes. The synoptic descriptions are usually very brief, but the common name is given at the end of each and reference given to the page in which a more detailed description appears. The book includes 400 species, and if the reader is enthusiastic enough to determine half of them, he or she will want a more comprehensive book.

The frontispiece to the work is a photograph of Œnanthe fistulosa, but unfortunately the three plants described on pages 138 and 139 do not refer to the picture, which is named Water Dropwort, whereas the descriptions give Common Water Dropwort, Hemlock Water Dropwort and Fine-leaved Water Dropwort. The reader may look a long time before finding Echinophora, which has long ceased to exist on the sandy shores of Kent, Dorset and Lancashire. There are two good indices, namely, of the common and Latin names. The printing and editing are good; the sixteen photographs should prove serviceable to beginners, while the drawings of leaf forms and flower forms should be helpful to beginners in the identification of wild plants.

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* *The Flower Seeker.* A Simple Guide to the Identification of Wild Flowers. By Forster Robson. Cassell & Company, Limited, London, New York, Toronto and Melbourne. Price 3s. 6d. net.

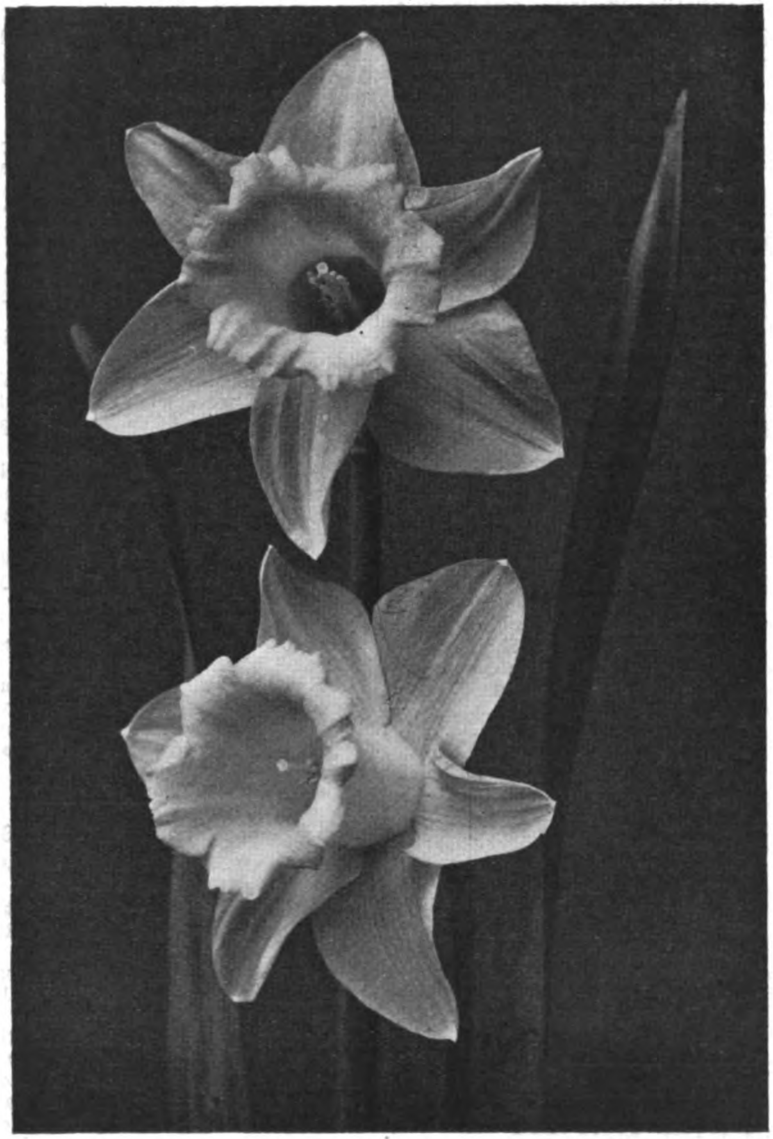

FIG. 119.—NARCISSUS MASTER ROBERT.

A.M., Midland Daffodil Society, April 24. A large, golden-yellow, Trumpet variety (see p. 259).

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Cymbidiums.—These handsome plants are now the most popular Orchids in cultivation. The graceful spikes and rich colourings of the flowers have caused them to become invaluable for decorative purposes, either when growing on the plants, or as cut blooms. The majority of both species and hybrids flower during the spring. There is no necessity to disturb the roots annually, and re-potting should only be done when the compost has become exhausted, or the plants have outgrown their receptacles. If re-potting is considered necessary it should be done soon after the flower scapes are removed. The roots are thick and fleshy, and as they are freely produced, ample pot room should be provided.

Method of Potting Cymbidiums—The rooting medium for Cymbidiums should be of a retentive nature, and may consist of one half its bulk of good fibrous-loam and the rest of half-decayed Oak leaves and Osmunda or A1 fibre, with sufficient crushed crocks to render the mixture porous. In re-potting disentangle the roots as much as possible without breaking them, and pick out loose portions of the old compost with a pointed stick. Place clean crocks in the pot to about one quarter its depth, work the soil well between the roots, and let the surface of the compost be one inch below the rim of the receptacle. Such species as C. Lowianum, C. insigne, and the many beautiful hybrids of this class, are best cultivated in ordinary flower pots, whilst those with pendulous flower scapes, of which C. Devonianum and C. tigrinum may be cited as examples, are best grown in pans, and suspended from the roof rafters.

Treatment after Potting.—Cymbidiums should not be subjected to a high temperature as this causes them to be attacked by red spider and scale insects. The plants grow well and flower freely in a light position in the cool Odontoglossum house. Well-rooted specimens in robust health require liberal supplies of water, and when moisture is applied, care should be taken to soak the compost thoroughly, which should be allowed to become moderately dry between each application of water. Cymbidiums are not difficult subjects to grow from seeds; we raise a large number each year at Gatton by a similar method to that employed for raising Cattleyas.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Nymphaeas. — Until comparatively recent times water-garden colour schemes had to be restricted to the surroundings of the lake, but the introduction of the beautiful Marliacea Nymphaeas enables the planter to carry his scheme on to the surface of the lake and be-gem it with masses of colour of innumerable shades. These beautiful plants flourish equally well in tanks, small ponds or extensive lakes, with an average depth of two or three feet of water, and provide a wealth of flowers during the whole summer and autumn. The present is a suitable time for planting these Nymphæas or overhauling those in the lakes and ponds. Nymphaeas grow freely in the rich mud deposit of a lake or pond, hence, when planting in these positions the work is of the simplest and consists in placing the plants in old wicker baskets, with soil to weigh them down, and dropping them into the required positions. Plants grown in tubs in the fountain basin in artificial tanks will need annual overhauling. They may be grown for two or three years in the same tubs, but annually, at this season, as much as possible of the old soil should be removed, substituting a rich compost in which a liberal supply of decaying vegetable matter has been incorporated. When overcrowding is apparent the plants should be divided and given more room. For lakes of large size the following varieties will be found useful:—N. Marliacea alba, N. M. carnea, N. M. chromatella, N. M. flammea, N. M. rosea and N. M. rubra punctata. N. tuberosa with its varieties Richardsonii and rosea are also of vigorous growth and suitable for the larger areas. For small ponds or basins N. Laydekeri and its varieties fulgens, liliacea, rosea, prolifera and purpurata are beautiful, while the varieties of the odorata group including alba, rosea, sulphurea and sulphurea grandiflora are additionally charming by reason of their medium-sized flowers and delightful fragrance.

Dahlias.—Old stools of Dahlias which have remained in their resting quarters will be better planted out now. By the time they have made growth danger of frost will be over and, if left longer inside, they will make etiolated growth and the plants become weakened. Young stock raised from seeds or cuttings should be grown on under cool conditions to prepare the plants for setting out-of-doors in a few weeks time. Plants which have been wintered outside by dense protecting material should receive attention. The protecting material will have become consolidated and should be removed entirely, substituting a little light, dry litter until danger of frost is over.

Planting.—Many of the hardier bedding plants, such as Antirrhinums, Dianthus, East Lothian Stocks, Border Chrysanthemums and Phlox Drummondii, may now be safely transferred to their flowering quarters, provided they have been sufficiently hardened. Where Fuchsias, Marguerites, Ivy-leaved Pelargoniums, etc., are used for the decoration of vases and other receptacles in sheltered positions they may also be planted. Make every possible preparation for the reception of plants of a more tender nature so that the work of planting may be carried out expeditiously when bedding out is in full operation.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

The Late Vinery.—The latest vines are making good growths. Two of the varieties generally grown in late vineries are Appley Towers and Black Alicante. These vines are sometimes a bit troublesome with regard to their growths breaking out at their bases when attempting to tie them to the wires in their early stages of growth. For this reason the training of the shoots of these varieties is best deferred until such time as the tips of the laterals have been pinched out. Other varieties that need a little extra care in this respect are Lady Hutt and Mrs. Pearson; both these varieties make strong growths.

Young Vines.—Where the propagation of Vines from eyes was undertaken as advised in a previous calender, the Vines will now be ready for placing in 7-inch pots. A suitable compost for this potting consists of good fibrous loam, old mortar rubble, and a little coarse bone meal with charcoal added to render the mixture porous. I do not favour the use of manures of any description for this potting. Maintain a moist, growing atmosphere by damping the floors and walls and syringing the young Vines overhead whenever the outside conditions are favourable. Maintain a minimum night temperature of 65°.

Early Vines.—With the outside conditions far from satisfactory for the early forcing of Grapes the daily operations required in the early houses need to be carried out with the greatest care. Those who have maintained a high temperature in the vinery by the use of the fire heat rather than a lesser amount of warmth as I have recommended in these notes, should keep a sharp watch for red spider, and if this pest is detected the leaves should be sponged with a mixture of soft soap and sulphur. In the early house the Grapes will have passed their seeding stage, and immediately this is noticed they should receive some assistance in the form of liquid or artificial manure; if liquid manure is used it should be warmed to the temperature of the house. When the Grapes are swelling the vines will require plenty of moisture and feeding with stimulants to assist them to finish their crop to perfection. Examine the bunches and if they appear crowded remove a few of the smaller berries. Where the vines are heavily cropped and any doubt exists with regard to obtaining a good finish it will not be advisable to maintain a high temperature at night. Should the weather prove cold a minimum temperature of 60° will be most suitable. Ventilate the vinery freely during the early part of the day, but close the house early in the afternoon in order that the temperature may rise to 85° to 90° with sun heat; this amount of warmth, together with plenty of atmospheric moisture, will favour the swelling of the berries considerably.

PLANTS UNDER GLASS.

By F. J. Clark, Gardener to Lt.-Col. Sir George Holford, Westonbirt, Tetbury, Gloucestershire.

Gesnera.—The corms of these plants which flowered last winter and have been treated as advised in a previous calendar, should by now be thoroughly ripened. They should be turned out of the pots forthwith and be repotted in a light compost of peat, loam, leaf-mould and sand. The pots should be well-drained. Four or five corms of the strongest-growing varieties may be placed in a 6-inch pot; the weaker-growing sorts should be grown in smaller-sized pots. An alternative plan is to start the corms by placing them thinly in shallow pans, afterwards carefully transferring them to their flowering pots when an inch or two of growth has been made. Cover the corms lightly with soil and place them sufficiently low in the flowering pots to allow room for later top-dressings. Very little water should be afforded the plants during the early stages of growth, but a moist atmosphere should be maintained; the plants should be shaded from bright sunshine. They may be grown in a warm greenhouse or in the coolest part of the stove.

Liliums.—L. speciosum and other stem-rooting varieties growing in pots will require close attention in the matter of top-dressing, without which the plants will wither away for lack of nourishment. The soil used for top-dressing should be made of richer quality than that in which the bulbs were potted, by the inclusion of some well-decayed manure from a spent hotbed. Avoid coddling the plants or the best results will not be attained. They require an abundance of water during their growing season, and a sharp watch should be kept to see that the tips of the growths are not injured by green fly.

Lachenalias. — Success in the culture of Lachenalias, which should be grown with as little artificial warmth as possible, depends very largely on the treatment they receive after flowering. Water should then be given sparingly and, after the leaves die down, moisture should be withheld altogether. The pots should then be laid on their sides on a warm shelf or in a frame which is fully exposed to the sun. The house or frame should be drip-proof, for the plants should be kept absolutely dry during their period of rest. The least moisture at this stage will start them into growth. If this should take place before they are potted the flowering quality of the bulbs will be much injured. Potting should be done in August.

HARDY FRUIT GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Apple Sucker and Codlin Moth.—A close watch should be kept for these pests; as soon as they appear the trees should be sprayed with a solution of arsenate of lead paste worked to the consistency of cream, and one pound will make about twenty or twenty-five gallons. Every part of the tree should be wetted with the fluid, therefore the spraying should be done before the leaves curl, otherwise the insects are difficult to dislodge. Fruit trees should not be sprayed when they are in bloom; lead arsenate is very poisonous, and only a responsible person should be permitted to use it.

Thinning Fruit Blossom.—Where time can be spared and fruit blossom is very abundant, it is well to thin the weaker blossoms when they are in the bud state. More especially does this apply to Cherries and Plums, as they cannot possibly set all the bloom which develops in large trusses. If fruit trees are relieved in this manner when bloom is so abundant as it is this spring, there would be more possibility of their blooming well the next season. The stronger the bloom the less liable is it to injury by frosts or cold winds.

General Remarks.—At the time of writing hardly a flower is fully open on Apple trees. I have never known the flowers to be so late or so slow in expanding. There is a fine show of Pear blossom, and most of it is strong and looks like setting well. Cherry trees also are well furnished with blossom, and a sharp watch should be kept for the presence of black fly, which is a great pest of these trees. Syringe them with diluted Quassia extract and repeat the spraying on one or two occasions if the first application is not effectual.

THE KITCHEN GARDEN.

By WALTER Y. STAWARD, Gardener to MRS. JOHN FERNEY The Moat, Berkswell, Warwickshire.

Potatos.—The planting of all main crop Potatos should now be completed. Tubers in store should be examined with a view to removing bad ones and rubbing off any shoots that have sprouted. The remainder should be kept in cool storage where a free circulation of air can be allowed. The shed in which Potatos are stored should be shaded from sunshine, and preferable on the back of a north wall.

Scorzonera.—This vegetable may be sown now. The seeds should be sown in rich soil which has been well tilled to a reasonable depth. Sow the seeds in drills made twelve inches to fourteen inches wide, and so soon as the seedlings are fit to handle thin them to ten inches or twelve inches apart.

Beet.—The main crop of Beet may be sown now, both Globe and long-rooted varieties, in a situation free from the shade of trees. If extra long roots are required bore holes in the soil with a crowbar and fill them with fine soil, pressing it down fairly firmly and sowing three seeds at each station.

Runner Beans.—These Beans may now be sown in soil that has been prepared previously. Take out a trench, as for Celery, and fill it with well-decayed manure, placing the soil on top of the dung. Place the seeds twelve inches apart and not too deeply. Dust the surface of the ground with soot as a deterrent to slugs, which are very destructive to the seedlings as they are just coming through the ground.

General Remarks.—The old stalks of winter greens should be pulled up, for they are very exhaustive of the ground. Successional crops of Peas may be grown on sites that have had a moderate dressing of farmyard manure. In digging the ground the surface soil should be broken finely for the reception of the seeds; if the ground is allowed to get hard and dry several weeks may elapse before a suitable opportunity occurs for pulverising it.

ALPINE GARDEN.

SAXIFRAGA LATEPETIOLATA.

This interesting plant is a member of a small group of the genus known by the name of "Nephrophyllum," the best known species of which is our native meadow plant, Saxifraga granulata. Others of the group are another native, S. cernua, which is found on the schistose rocks, near the top of Ben Lawers, and S. irrigua from Asia Minor, which is one of the best in this section, with divided, palmate leaves and large white flowers in June and July.

S. latepetiolata (Fig. 120) is a biennial growing nearly one foot high and comes from Spain. The first year from seed it forms a handsome rosette of lobed leaves on long stalks, and in the following spring sends up a branching stem on which develop panicles of white flowers in April and May. The whole plant is thickly clothed with soft hairs and is very liable to suffer from damp in winter. It should be grown in pots in gritty soil and kept dry during the winter in a cold frame. So far it has not proved hardy in this country. *W. I*

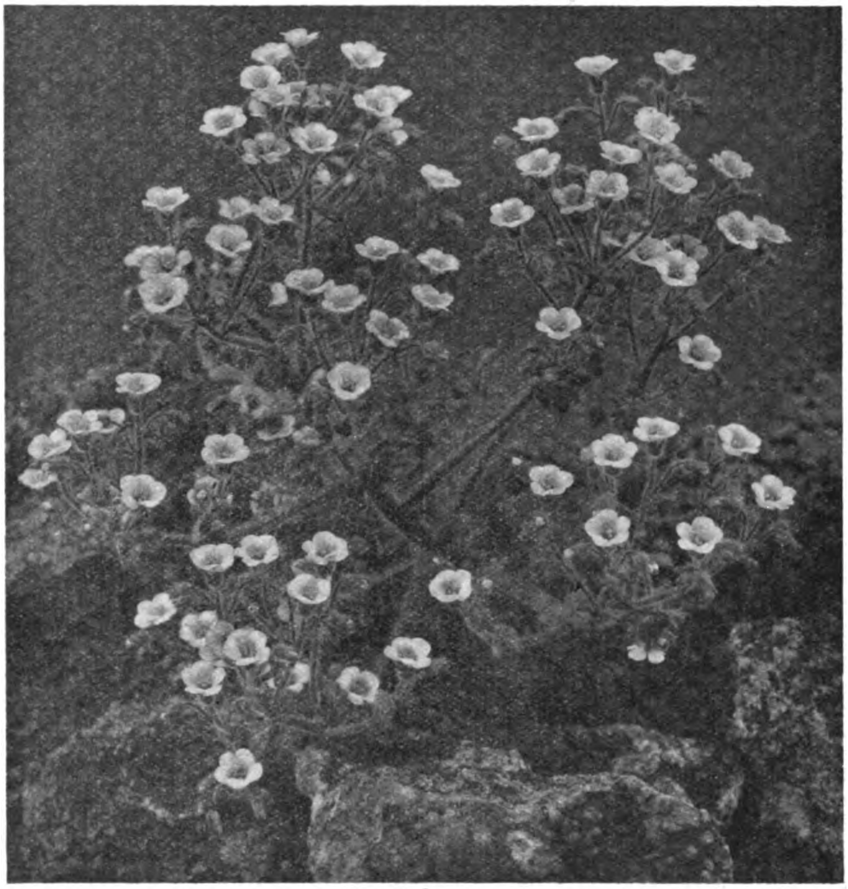

FIG. 120.—SAXIFRAGA LATEPETIOLATA.

HABERLEA RHODOPENSIS.

In the cultivation of Haberlea rhodopensis shade is essential to ensure success. I have seen many plants in gardens in the most varied districts in the British Isles, and in no case have I observed really good Haberleas in situations exposed to full sunshine, although in practically every case where the plants were in shade they were pictures of health and beauty. Though Haberlea rhodopensis is generally grown in crevices of the rock garden, the most glorious plant I have ever seen was growing on a mound of soil and stones, with the plant between the stones on the top, and overhung by a shrubby Spiraea, and in such a position that not a ray of sunshine could reach it from one end of the year to the other. The plant had increased to several feet in diameter, with amazingly healthy foliage and it produced many of its delightful flowers. Planted there in sandy soil containing peat, and left undisturbed for years, this splendid specimen was an example of the capabilities of the Haberlea in gardens when the conditions are congenial. Another point which requires consideration is that of water. The Haberlea will endure a considerable amount of hardship through drought, but the best results cannot be obtained if the plant is exposed to drought for long or even short intervals. This is not to be taken as advocating the conditions of a bog, but simply that the plant should never be allowed to suffer from want of water in dry weather.

It is difficult to overpraise the charms of Haberlea. It reminds one of a Streptocarpus, more than of a Gloxinia, to which some would liken it. There is much charm in the wrinkled, roughish leaves and the numerous flowers of a delightful violet, whose beauty is heightened by the yellow throat.

ANTHEMIS AIZOON.

This beautiful little plant is also known as Achillea ageratifolia, A. serbica and A. Aizoon, but I prefer to adhere to the old familiar name of Anthemis Aizoon, by which I have known it for very many years. It is one of the best Alpine plants on account of its beauty, its hardiness and its ease of culture, as well as for the fact that it may be employed in numerous ways for the adornment of the garden. It loves a sunny spot, and should be planted in loam and peat or leaf-mould and sand; but it is not too particular as to soil. It appears to like lime, but this material is not essential to success. This Anthemis looks lovely in crevices of rocks or on flat places in the rock garden. It is charming when planted in a wall garden; and, although seldom used for the purpose, supplies a charming edging for a border of hardy flowers. It is easily propagated; cuttings strike readily, whilst large plants may be divided with ease, and seeds give a ready means of raising a good stock in a short time.

Anthemis Aizoon is a truly charming little plant with its silvery-white, attractive leaves and its modestly pretty Daisy-like flowers with white rays and discs, on stems five or six inches high, the blooms lasting fresh for a considerable time. It blooms from May onwards.—*S. Arnott.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

From a gardener's view-point the only redeeming feature in the weather of March and most of April has been its unusual windlessness. Throughout the winter there has been a singular absence of violent gales on the south-west coast of Scotland. We had a sharp frost in November; thereafter a long track of rainy weather, mostly cold, but practically frostless, till in the second week of March the mercury registered 13° of frost on two consecutive nights, which not only destroyed all blossom on Rhododendron barbatum, R. Fargesii, R. oreodoxa, R. fulgens, etc., but wrought more widespread mischief than I have known to be done by a much lower temperature. Frost on nearly every night from the middle of March till Good Friday (18th April) beneficially retarded precocious growth in several species of flowering shrubs; and now there is developing a fine display upon Rhododendron arboreum and others not among the earliest to bloom. As this has proved to be the most trying season of the last twenty years in our district, it may be useful to record its effect upon some of the newly introduced shrubs and herbs, as well as some others of doubtful hardiness. Those marked * in the following list are trained on a wall; those sheltered by a wall but not trained on it are marked †; the rest are all in the open.

Unhurt.

Abutilon vitifolium, *Abelia floribunda, *Berberidopsis corallina, Choysia ternata, †Cyrilla racemiflora, Drimys Winteri, Diplopappus fulvida, Embothrium coccineum, Eucryphia pinnatifolia, E. cordifolia, E. Billardieri, Fritillaria libanotica, Genista hispanica, Helichrysum antennarium, Hippeastrum (Habranthus) pratense, Illicium religiosum, *Lapageria rosea, Lycoris squamigera, Mutisia decurrens, †Mitraria coccinea, Nerine Bowdeni, Osmanthus Delavayi, Philesia buxifolia, Piptanthus nepalensis, Pittosporum Ralphii, Pieris formosa, P. japonica, P. taiwanensis, Rhododendron arboreum, R. adenogynum, †R. bullatum, R. crassum, R. ciliatum (some flower buds frosted), †R. Edgeworthii (also grown as an epiphyte), R. glaucum, R. hippophaeoides, †R. megacalyx, R. neriiflorum, †R. Scottianum, R. sino-grande, R. Griffithianum, R. oreodoxa (flowers frosted), R. Fargesii (flowers frosted), R. glishchrum, R. habrotrichum, R. Soulei, etc., etc.; Rhaphiolepis Delacouri, R. ovata, Senecio Huntii, S. Grayi, S. Buchananii, S. Munroi, Styrax Wilsonii, Umbellularia californica, *Camellia reticulata, Veronica salicifolia, V. parviflora, V. Traversii, etc., Viburnum Carlesii, Carmichaelia australis, Notospartium Carmichaeliae, Cordyline australis, Phygelius capensis, and Ozothamnus rosmarinifolius.

Injured.

Arbutus Menziesii, Calceolaria integrifolia, †C. violacea, Cistus purpureus, *Clianthus puniceus, †Mutisia ilicifolia, Polygonum equisetiforme, Thamnocalamus Falconeri (25 feet high), Senecio Hectori, S. rotundifolia, and Veronica, some species.

Killed.

Callistemon salignus (or speciosus), Diplopappus leptophylla, Gordonia, †Metrosideros tomentosa, and Ornithogalum thyrsoides.

The only surprising points in the list are (1) That Arbutus Menziesii, about eight feet high, should have had much of its vigorous growth killed back, and (2) that while the blossom of Pieris japonica was destroyed by March frost, that of Pieris taiwanensis remained untarnished. The two species flower simultaneously, and the latter seems likely to prove the hardier of the two.

I was glad to read Mr. Arnott's request for information about that fine plant Stenanthium robustum. It must be ten or fifteen years since I first got some roots of it. It delighted us in its first season, throwing up feathery plumes, reminiscent of Stilicho's *cognita canities* and the *panache blanc* of Henri of Navarre. But it never did the like again; the plants dwindled and finally disappeared, and although I have bought fresh roots from time to time, the result has never been satisfactory, and this handsome herb has been written off as unmanageable. Has anyone succeeded with it permanently? *Herbert Maxwell, Monreith.*

HARDY FLOWER BORDER.

PAEONIA TENUIFOLIA FLORE PLENO.

This very pretty and somewhat quaint plant is a bright addition to the border or the higher parts of a large rock garden. It rarely exceeds eighteen inches or two feet in height and is one of the first Paeonias to flower, invariably being at its best during the first half of May. The finely-cut foliage is surmounted by the deep, ruby-red flower which is fairly persistent. Large drifts of this plant should be particularly effective. This Pæony is not fastidious with regard to soil or position, but would seem to prefer a deep and well-drained loam; it is increased by division of the roots. P. tenuifolia fl. pl. was introduced from Russia in 1831. *Ralph E. Arnold.*

IRIS MONNIERI.

A beautiful species, this Iris is happiest when planted near water, and in such a position is a truly noble plant. It is also a good border plant and is a conspicuous object during June and July. Attaining a height of three feet or rather more, the comparatively large, soft yellow flowers are in pleasing contrast to the elegant, light green foliage and last in beauty over a considerable period. The plant dislikes frequent disturbance, and often fails to flower with freedom until thoroughly established. Iris Monnieri was introduced from Greece in 1820.

HOLLYHOCKS.

Although the deadly fungus (Puccinia malvacearum) has attacked the Hollyhock with more or less virulence for many years, this old-world subject is highly popular in gardens throughout the country. Young plants may be planted out during the month of May, but growers should remember that the Hollyhock is a gross feeder and delights in soil which has been deeply trenched and well manured. When the plants have become established it is desirable to mulch around them with half decomposed manure, and to apply water freely as required. The growing stems need the supports of stout, five-feet stakes. To secure the finest flowers all side shoots should be removed, thus keeping the plant to one single stem. The flower buds may also be thinned with advantage, and the tips of the stems pinched out at any desired height. The Hollyhock is hardy, but old plants are liable to suffer through excessive wet during the winter. In cold and wet localities it is advisable, therefore, to lift choice varieties in the autumn and plant them in a bed in a cold frame. The Hollyhock disease may be checked by spraying the plants frequently with a suitable fungicide. *Colin Ruse, The Hyde Gardens, Luton.*

HARDY ANNUALS.

Annuals figure prominently amongst the flowers of summer. Of the two sections, hardy and half hardy, the latter eases the problem of wintering tender bedding plants, while the former may be put to many uses. In hardy flower borders, for instance, where spring flowers are grown extensively, vacancies occur on the approach of summer and for furnishing these spaces no plants may be provided with less trouble than hardy annuals. The hardy annuals are also valuable for yielding quantities of flowers for cutting.

For purposes of garden adornment, however, it is necessary to plant them in bold patches. The seedlings should be thinned early, the the distance apart being regulated by the height and vigour of the variety. For planting to follow the passing out of bloom of early subjects, seeds of annuals should be sown in small pots in May, and kept in a cold frame until they are set out-of-doors.

Chief among the showy kinds are the pot Marigolds, Calendula officinalis. These plants average twelve inches in height, and bear a profusion of double orange and yellow flowers. The varieties Orange King and Meteor are very striking sorts and compare favourably with the much taller and more tender African Marigold. The dwarf, bushy habit of the Candytuft renders the plant suitable for use as an edging subject but wherever Candytufts are employed, each plant should have room to develop if good heads of bloom are expected. Some pretty colours are available, in both dwarf and semi-dwarf varieties.

Annual Chrysanthemums are most serviceable; they have a vigorous habit, and their bright-eyed flowers stand out well in rain or rainshine. Noteworthy amongst varieties which grow eighteen inches high, are Morning Star, with very large Marguerite-like flowers of soft yellow colour; Eastern Star, primrose-coloured with a deep chocolate centre; C. coronarium Coronet, with a white zone and bright lemon band; and the double-white C. inodorum plenissimum, this last being especially useful for cutting. Others of taller growth, and in a wide diversity of colours are available. Coreopsis combine beauty and utility, and few annuals are more useful for furnishing vases in room decoration. Yellow and brown are the dominating colours in the species C. Drummondii and C. tinctoria, but the large flowers of C. coronata are yellow, and equal the more or less perennial C. grandiflora; in C. marmorata they are curiously marbled and striped. Excepting the last named, which grows three feet tall, the height of the plants is eighteen inches, and there are dwarfer forms.

Clarkias in the open, as under glass in spring, are amongst the brightest of annuals and worthy of a position in a border of the choicest flowers. The variety Salmon Scarlet is the most brilliant colour, and purple, pink and white sorts are available.

Blue is always associated with Cornflowers, and often to the exclusion of the white and pink forms, which are quite as ornamental.

The merits of the miniature Convolvulus, C. minor, are worthy of more recognition than they often receive. This plant has a bushy habit, grows twelve inches tall, and may be had in blue, white, and pink colours. The past two seasons have not been suited to the Eschscholzia owing to absence of sunshine, but even when the flowers do not unfold, the buds provide a wealth of brilliant colour. The Geisha is a variety well worthy a bed to itself, being beautiful in all its stages; the outer side of the flowers is orange-crimson, and the inner golden-yellow. Pink, buff, and crimson are other fine colours to be had in this flower.

A pretty variety for rockwork is Miniature Primrose.

It may be claimed for Godetias that they are unsurpassed for garden decoration, for they have a graceful habit, and a wide range of brilliant colours, rendering them useful for cutting. The tall varieties produce their flowers in sprays, and the dwarfs in clusters. Of named sorts, Marchioness of Salisbury, rosy crimson, Lady Albemarle, bright crimson, and Duchess of Albany, are especially noteworthy.

Many uses will suggest themselves for the annual Gypsophilas, G. elegans is white, and there are also pink and rose forms. Lavateras afford excellent material for furnishing the background of a narrow border, for they are rapid growers, attain a height of three-and-a-half feet, and measure nearly the same distance through. One of the prettiest varieties is Loveliness, with large, rose-pink flowers, and bronze-tinted foliage.

A most brilliant annual for a bed is the scarlet Flax, Linum grandiflorum rubrum, which grows to a height of twelve inches.

Of the merits of annual Larkspurs and Lupins much might be written. Rosy Scarlet is a splendid variety of Larkspur of recent introduction, while Lupinus Hartwegii, L. Menziesii and L. mutabilis, all show to advantage. The variety Miss Jekyll is still the most popular form of Love-in-a-Mist, although the double, dwarf sort makes a pretty patch in the front of a border. Mignonette is valuable in the garden for its fragrance.

One of the prettiest blue-flowered annuals that I know is Phacelia campanularia. It grows nine inches high, and though early to bloom lasts a long time in flower. As a carpet to Rose beds and similar beds it is most useful. The Shirley varieties of the common Field Poppy, Papaver Rhaeas, include almost every imaginable colour, and the blooms are both single and double. Less pleasing, perhaps, to many, are the forms of P. somniferum, with their huge double, Opium-scented flowers, and greyish, smooth, green foliage. They may be employed in the shrubbery for they are strikingly showy

Sweet Sultan should be included in any selection of annuals, if only for cutting, for the flowers are very attractive.

Those I have enumerated by no means exhaust the list of hardy annuals, but it includes some of the best kinds. *Y. G.*

ANNUALS FOR GREENHOUSE AND CONSERVATORY DECORATION.

COLLOMIA COCCINEA.

This bright, red flowering hardy annual, is well worth growing and is one that succeeds under the treatment indicated for Collinsia.

DIANTHUS CHINENSIS

(Indian Pink).

Generally known in gardens as Dianthus Heddewigii, the varieties of D chinensis include a number of beautiful subjects both single and double, in colours ranging from white through varying shades of rose, pink, and scarlet to crimson. There are also varieties with fringed edges to the flowers which are included under the varietal heading laciniatus; these include single and double varieties, with the same range of colouring as the typical forms.

The Indian or Chinese Pinks have long been favourites for summer bedding and for filling spaces in the front of the mixed border. They are equally useful for growing in pots, especially for furnishing small, unheated greenhouses. For this purpose seeds should be sown during February in pans or boxes according to requirements; when large enough to handle three or four plants should be placed in each 48-sized pot in which they will flower. Perfectly cool treatment is essential to success, therefore they should be grown in a low pit, keeping them well up to the roof glass, giving them ample ventilation and exposure to light. If kept at all close they grow weakly and weedy; the growth should be kept neatly supported with slender twigs of Hazel.

DIANTHUS MARGARITAE.

This Pink is now included under Dianthus Caryophyllus, and although really perennial is usually treated as an annual. The strains include a number of varieties, and their successful cultivation presents no difficulty as they grow freely in any good potting compost. Seeds should be sown during February in a warm greenhouse and the seedlings pricked off into boxes; when large enough they may be placed singly in small pots and potted on as they require it. They make fine plants in six-inch pots, and are very useful for the greenhouse during late summer and autumn. They may be grown in cold frames during the summer, or planted out in the reserve garden, where they may be lifted and placed in suitable-sized pots during September. *J. C.*

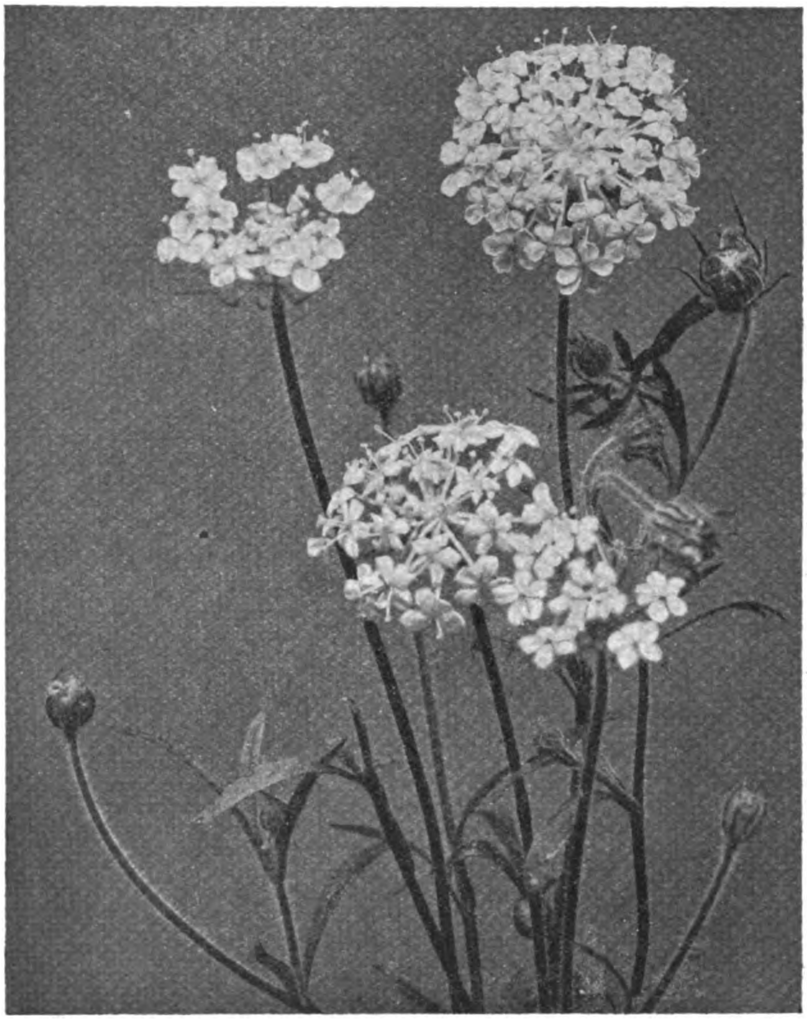

FIG. 121.—TRACHYMENE COERULEA.

TRACHYMENE COERULEA.

This interesting and beautiful half-hardy annual from Australia has not received the attention from cultivators which its merits deserve. It is one of the comparatively few blue-flowered annuals, and one which flowers for a long period, from the end of summer throughout the autumn. In the south and west of England especially it succeeds and produces a continuous supply of its rounded heads of blue flowers, carried well above elegant, deeply cut and slightly hairy foliage (Fig. 121). It should be treated as a half-hardy annual and is not only useful for garden decoration, but is suitable for the conservatory, especially where plants from eighteen inches to two feet high are suitable and blue colouring is desirable.

When Samuel Curtis was conducting the *Botanical Magazine* and Sir W. J. Hooker writing the descriptions of plants, Trachymene coerulea was figured and *Bot. Mag.*, t. 2875, is dated December 1, 1828. In the following year, under date of April 1st, 1829, the species was figured in the *Bot. Reg.*, accompanied by the following statement:—"This beautiful New Holland annual has only been seen in our gardens during one season. It first presented itself to our notice in the garden of the Horticultural Society in August last, having been raised in that collection from seeds received the previous spring from Mr. Charles Frazer, of Sydney, in New South Wales. We have subsequently heard of it in other collections in this country; and M. Decandolle informs us that it is also growing in the Geneva Garden. It is a half-hardy annual, flowering in great beauty in the open border in October and November; but in such situations it does not ripen seed; for that purpose, the plants must be kept in the greenhouse and treated as Balsams and similar annuals; so managed, they will flower from July to November."

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MR. F. KINGDON WARD'S EIGHTH EXPEDITION IN ASIA.

II.—IN THE SIKKIM JUNGLE.

BEFORE noon on the morning of March 14 we left Darjeeling by car, and slid round the *khud* by a well-graded road. At the eighth mile we halted—the car could go no further; and here our ponies awaited us. The baggage had been sent ahead the previous day.

From the temperate forest, splashed with the pink and white of Magnolia Campbellii, and the floating Water Lily flowers of Michelia, from whose great boughs depended festoons of scarlet-beaded Agapetes, we came down into the Tea gardens—thousands of acres of Tea. It is over sixty years since Robert Fortune brought the Chinese Tea plant to India, and thereby established the great industry for which he is most famous. But there is also an indigenous Tea plant; and the one now cultivated in the Darjeeling district is a cross between the native and the introduced species. The Tea gardens were often fringed with the Khasia or Shillong Oak, now clad in the freshest, brightest, green foliage. The leaf closely resembles that of the Spanish Chestnut.

There was little to see in the jungle—bushes of Skimmia with clusters of red berries; a species of Strobilanthes, and other lanky undergrowth, particularly Acanthaceae. After the Tea estates came Sâl forest (Shorea robusta), all shrivelled up in the heat, and dead leaves crackled down all round us. Soon afterwards we caught sight of the junction of the Great Rangit river with the Tista. Descending further through thick monsoon jungle in which no two neighbouring trees were similar—amongst the more exotic looking plants were species of Cycas and Screw Pine—we reached the Tista and camped on a small *maidan* on the outskirts of the village. A duststorm about sunset made matters unpleasant for half-an-hour, but the night was calm and warm.

We now had all our personal baggage with us, and lacked only our stores. Next day we walked two miles down the valley to the Kalimpong Road station, only to find that the stores had not yet arrived. We therefore decided to go on without them, and having loaded twelve of the mules started in the hottest part of the day for Kalimpong, which is situated on a high spur above the Tista. Before we reached the village a heavy storm burst upon us, and we were introduced to wind and rain of Himalayan violence—and also to a Himalayan sunset. At Kalimpong, altitude 4,000 feet, we found the gardens of the missionaries gay with English flowers—Stocks, Roses, Larkspur, Antirrhinum, and others. We rested the following day in order to get some silver, conclude our final purchases, and make arrangements for our stores to be sent on after us; and on the 17th we set out for Gangtok, the capital of Sikkim. First we descended to the Tista again by a steep and execrable path; but once down we joined the cart road from railhead, and the going was easy. The heat, however, was stifling and the moulting forest afforded little shade. Bauhinia variegata, leafless like many other trees, was in full bloom, and in the villages the white waxen flowers of the Pomelo (Citrus sp.) scented the air like Orange Blossom. Large-leafed Araliaceae, Brassaiopsis, Heptapleurum, etc., Sâl, Tree-of-Heaven, and other trees were seen, and masses of a lanky tree-like Acanthad, with almost cobalt-blue flowers. Immediately after crossing the Sikkim frontier (where we had to sign our names at the guard house) we halted for the night.

On the 18th we rode the remaining twenty-four miles to Gangtok—sixteen miles in the stifling hot valley and eight climbing the mountain. At first we kept to the Tista, but after a few miles we left that river and proceeded up a tributary in a north-easterly-direction; and having climbed a thousand feet or more, the vegetation became more interesting. Here were many old friends—Englehardtia, Bucklandia, Tilia and Alnus, Schima, Bauhinia, Butea and others. Round about 5,000 feet in the Sikkim Himalaya, epiphytes are most numerous and varied. They comprise, of course, Orchids, Ferns, Ericaceae (Agapetes), Gesnerads, and a handsome Lycopodium. Amongst the Orchids in flower may be mentioned the white Coelogyne cristata, the yellowish-green Cymbidium grandiflorum, Dendrobium heterocarpum, and a species of Eria with dull, yellowish flowers, covered all over on the outside with grey wool. We reached Gangtok in the evening, and were the guests of the Resident and his wife for two delightful days.

Major Bailey requires no introduction to readers of *The Gardeners' Chronicle*. We spent an instructive morning going round his garden, while he pointed out treasures which he had brought back from Bhutan and Tibet. One of his new Rhododendrons, found in 1913, a species of the Fortunei series, is about to flower. But Rhododendrons do not do well in Gangtok; indeed in Sikkim they nowhere seem to descend below about 7,000 feet. The Orchids are of better augury. Several were in flower, including the curious little spotted Saccolabium calceolare, and Calanthe chloroleuca. But few of any special garden merit were in flower: A beautiful plant in flower was a new deep blue Larkspur from Bhutan. It forms massive clumps from six to nine inches high, with a sheet of blue flowers floating on a sage-green sea.

While at Gangtok we paid a visit to the Maharaja of Sikkim and his charming Tibetan wife. They both speak English, and we were shown over the private chapel, which is eastern, and over the garden, where Paul Crampel in pots vies with a herbaceous border of Petunias, Lychnis, Brompton Stock and other flowers. A fine Wistaria covers the front of the palace, and there are English Roses in beds on the lawn, covered over with matting to protect them from the destructive hailstorms which are of frequent occurrence in Gangtok at this season.

From Major Bailey we received our passports, a few instructions, some advice, and a great deal of valuable information concerning the country we were about to visit; and on "the fifteenth moon of the second month in the year of the Wood Mouse" (more prosaically March 21, 1924,), we finally started on our journey. Henceforth there would be no looking back. We must climb and climb, until we reached the plateau of Tibet itself, at an altitude of nearly 16,000 feet. Not till then would we descend again.

How mighty are the Himalaya! Yunnan paled into trifling insignificance beside this stupendous barrier. The steepness of the spurs round which the road took us was fearful. The swiftness of the rise, too, is wonderful. From the Tista river to Gangtok (6,000 feet) is an easy day's march. Another march brings you to Karponang, 9,500 feet: and on the third day you reach Changu, 12,600 feet. Then on the fourth day you cross the Nathu La, over 14,000 feet, and three days later reach Phari on the Tibetan plateau. But I anticipate.

Immediately after leaving Gangtok we entered the forest, composed largely of gigantic Oaks with an impenetrable undergrowth of Bamboo. Masses of snowy-white Coelogyne cristata hung from the branches of the trees, or clung to the rocks. At still higher altitude, up to perhaps 12,000 feet, this species is replaced by C. corymbosa; but there seems to be very little difference between the two, except such as would be accounted for by the higher altitude, and C. corymbosa might as well be regarded as a dwarf form of C. cristata. The flower ought, one would think, to be hardy in England, but probably is not. C. cristata at any rate, and perhaps C. corymbosa also, is found on the north-east frontier of Burma.

As the road wound round the cliffs, sometimes hacked out of the rock, sometimes built out on brackets, we could see far up the densely forested side of the mountain, and hundreds of feet over the cliff on to the tops of the trees below. The dark green billowy surface was everywhere flecked with the milk-white foam of Magnolia Campbellii. We passed hundreds of trees in the course of an eleven-mile march, looking up to them and down on them and across at them; but not a single pink-flowered specimen did we see. Here and there was a white-flowered Michelia, but these were not nearly as common as the Magnolias.

Between 8,000 and 9,000 feet altitude we saw our first Rhododendron, R. arboreum, in full bloom. There are some fine old trees between Gangtok and Changu, gnarled and twisted, but even so, thirty feet high. The trusses are small and compact and of the most vivid blood-red, beaten in that respect only by the flowers of R. barbatum. A little higher we met with R. Falconeri in force, and with R. grande, neither of them in flower. Indeed we could not see a single flower bud on any of the Falconeri trees—something seemed to have gone wrong with them.

An interesting plant first met with at about 9,000 feet altitude and last seen at nearly 14,000 feet, is Primula petiolaris. It was in full bloom, a bright magenta or rose-purple. It varies considerably in colour and size of flower, and also in habit, in the course of its 4,000 feet of vertical range. The eye is usually bright yellow, at least in the pale-flowered forms from open situations; but some of the dark-flowered forms from beneath rocks have the eye almost brown or tawny. The plant grows best in the thick damp moss which covers the steep rocky slopes where an open growth of Bamboo prevails; but it was seen in every gully, on rocks and cliffs, and in the brown alpine pastures above the timber line, where it grows flush with the turf. Some flowers were an inch-and-a-half in

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The previous article by Mr. Kingdon Ward was published in our issue of April 12, 1924.

diameter, others did not exceed a quarter-of-an-inch. But when the flowers are large, there are only three or four on the umbel, while on an average plant there may be so many as twenty flowers in a head. Similarly, the head may be uplifted on a distinct scape, or practically sessile, according to situation. Usually I could detect no scent, but sometimes an elusive fragrance of Primroses is distilled. There is usually an irregular efflorescence of greenish-white meal on the young leaves, especially in high Alpine specimens; and this may spread to the under surface of the corolla lobes. Growing on mossy banks, under Bamboo, P. petiolaris looks exactly like the Chinese P. sonchifolia, only with rose-purple instead of blue-violet flowers. Undoubtedly it would be easy to pick out half-a-dozen distinct varieties of P. petiolaris, as is done in the *Flora of British India*. But too much stress need not be laid upon the fact. We saw three or four varieties in the course of a day's march, and a packet of seed from a single plant might easily give rise to several varieties if sown between 9,000 feet and 13,000 feet. P. Winteri (formerly P. petiolaris var. pulverulenta) has blue flowers not unlike those of P. sonchifolia, and I hardly see why the latter should not be classed in the section "Petiolaris," as the Chinese form of P. petiolaris, instead of leading a celibate existence in a section by itself. I suppose the difference in the fruit makes this inevitable, however.

Above 10,000 feet Rhododendron barbatum was coming into flower, a brighter red even than R. arboreum. With it was a small tree with foliage like the Chinese R. brevistylum. It was not, however, in flower, and its leaves, rolled into tight cylinders, hung straight down. R. Thompsonii and the shrubby R. glaucum were the next comers. On the moss-clad granite cliffs were the young of all these species, R. barbatum and the "Heliolepsis," with the under-leaf surface coloured a deep purple, and a spiders web of agglutinated hairs spread over that of the former, after the colour is lost.

Above 11,000 feet we came into forests of tree Rhododendrons—R. arboreum, R. barbatum, R. grande, R. Thompsonii, and "Heliolepsis," none of them in flower, and all with dejected foliage. R. Falconeri was either absent from this valley or very rare. Snow lay deep under the trees on the sheltered slope, and stretches of brown Alpine turf, whence the snow had recently disappeared, added to the bleak look of the valley. Many of the big tree R. arboreums were sadly derelict, their topmasts gone by the board; and the scattered Abies, which likewise grew here, were even more battered. At an altitude of 12,600 feet tree growth ceased entirely, and we came to a lake about half-a-mile long, occupying an ice-ploughed furrow in the valley. The surface was completely frozen over, but, unfortunately, we had forgotten to bring our skates. At the head of the lake was the bungalow called Changu, where we halted for the night. *F. Kingdon Ward.*

TREES AND SHRUBS.

GREVILLEA ROSMARINIFOLIA.

After such a long period of cold weather and icy winds I was agreeably surprised to see Grevillea rosmarinifolia in full flower on April 3, in a West Kent garden. Except that the foliage had been made somewhat brown the plant had withstood the cold very well, which is remarkable for a shrub which has its natural habitat in New South Wales. Grevillea juniperina sulphurea is found in the same region. This particular plant of G. rosmarinifolia was eight feet or so across, quite three feet high, and dense in habit; most of the short growths were terminated with short racemes of shining red flowers, tipped greenish yellow, and peculiar in shape, which gave that part of the border a warm glow. *C. F. C.*

ARBUTUS UNEDO.

A well-grown specimen of Arbutus Unedo is an ornament in any garden, and the tree, being evergreen, is interesting at all seasons. In certain favoured districts this Arbutus bears a large crop of its beautiful, globose, bright red fruits, which have a small resemblance to a Strawberry, hence the plant's common name of Strawberry Tree. The fruits are edible but not very palatable. The tree is interesting in that it is found growing wild in localised parts of Ireland, including the shores of Lake Killarney, and nowhere else in Great Britain. It is more common in cultivation than its congener, C. Menziesii, which formed the subject of the supplementary illustration in *Gard. Chron.*, March 8, 1924.

As will be observed on reference to the illustration (Fig. 122), flowers and fruits appear on the branches at the same time; during the late autumn and winter a well-fruited specimen gives a touch of bright colour to the shrubberies in the dull season of the year. In gardens this Arbutus grows usually from fifteen to twenty feet high but in its native habitat in Ireland specimens exist up to forty feet.

There are varieties, including compacta, of dwarfer habit than the type and not so free in flowering; integerrima, a form with entire leaves; and rubra, a variety with deep pink flowers, forming a rather low, spreading bush. Unlike most members of the Ericaceae, A. Unedo will thrive on lime-stone and it is not essential to use peat, as in the case of Rhododendrons, Kalmias, and other so-called American plants.

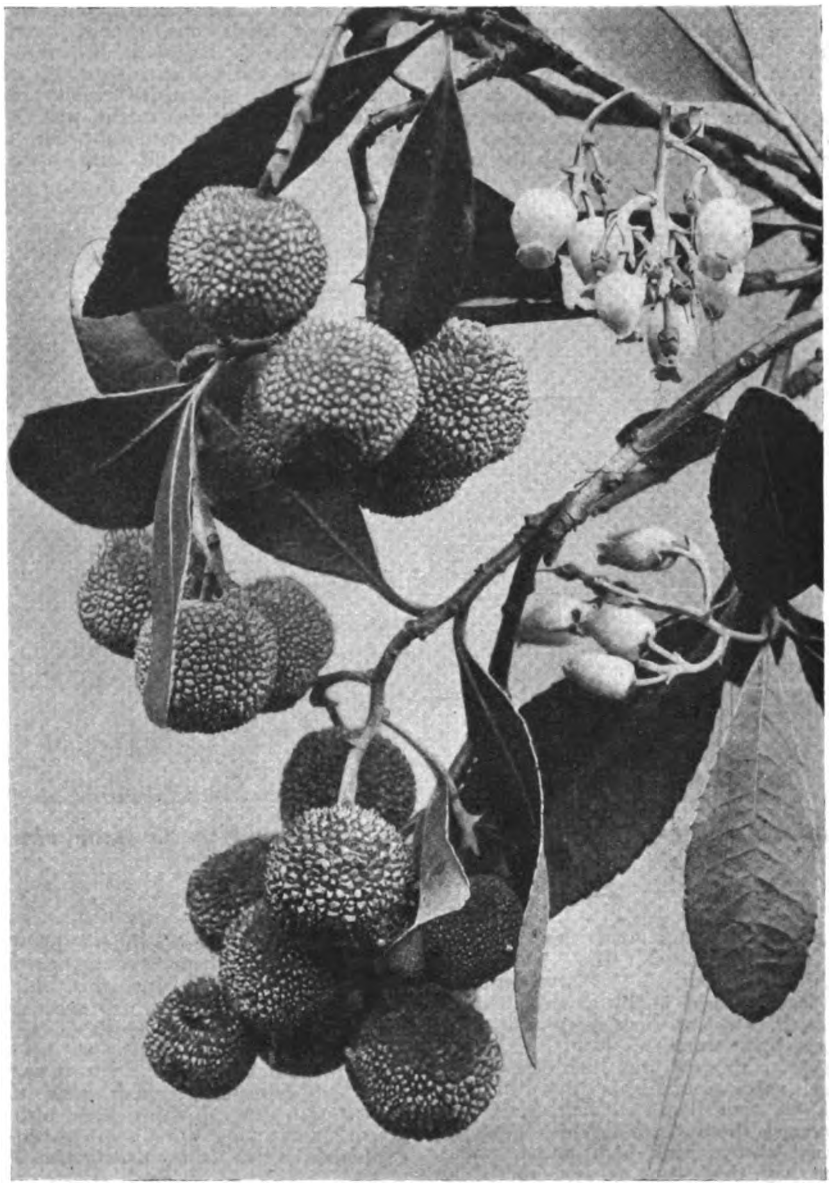

FIG. 122.—FRUITS AND FLOWERS OF ARBUTUS UNEDO.

ARTEMISIA TRIDENTATA.

Though this plant was introduced to this country many years ago it is still rarely seen in gardens. It is a native of the "sour lands" of western North America, covering vast stretches of these elevated, semi-desert regions with the uniform grey of its foliage and often forming the greater part of the "Sage-brush" of those inhospitable regions. As an ornamental shrub it can lay claim to no small merit. Growing to about six feet or more in height the foliage (especially in spring) and young wood are covered with a silvery sheen. The leaves, being wedge-shaped and indented with three notches at their extremities, are quite unlike those of any other shrub with which I am familiar, and they emit a refreshing, aromatic fragrance, especially after rain. The pale yellow flowers, produced in long panicles in autumn, are perhaps the least interesting feature of the bush. A. tridentata seems to be quite hardy, but it should be grown in stony, well-drained soil and an open situation. is desirable. Though naturally evergreen the shrub often loses most of its leaves with us in winter, the new foliage appearing in early spring.

SOME NOTABLE SPRING-FLOWERING SHRUBS.

ONE of the choicest shrubs in bloom on the first of the present month was Pieris formosa, whose six-inch racemes of large, globular, pure-white flowers are very effective against the rich, glossy green of the ample foliage. That this species is the finest of its race few will disagree, but it is not hardy everywhere, and when it blooms very early in the year, as it often does, the flowers are liable to be injured by the frost. This year the blossoms and new growths appeared simultaneously. The latter are remarkably showy, consisting of large cockades of tender leafage in a highly glossed, flaming vermilion. P. formosa does very well here in ordinary, light woodland loam.

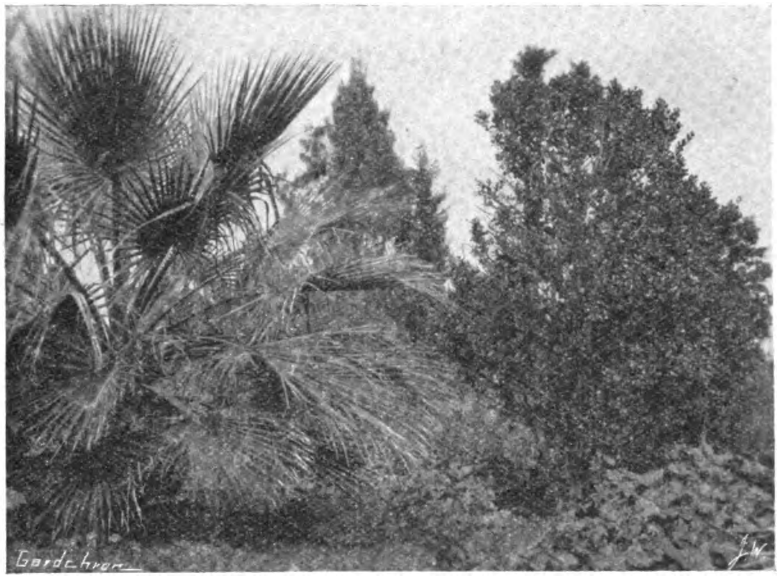

FIG. 123.—BRAHEA FILAMENTOSA AND ILEX AQUIFOLIUM IN HAMILTON PARK, BLOEMFONTEIN.

Amongst the Brooms and their allies there are many species and varieties of the greatest merit that flower during April and May. Amongst these the old White Portugal Broom must always rank high, and it would be safe to say that were it not so easily propagated it would be considered one of the choicest of its race. This Broom, however, varies a good deal in form and habit. In a batch of seedlings one may get some with much larger flowers (sometimes creamy-yellow) than those of the type. Some will present a lax, drooping habit, others will hold their branches stiffly erect and there is often a considerable difference in the amount of leafage carried by the various forms. All of them are good and there is no end to the variety of uses to which they may be put.

The common yellow Broom is, with double Gorse, making a fine blaze of yellow on a dry slope of thin woodland, but, good as they are for some purposes, the varieties of the Andreanus section never seem quite so pleasing in the semi-wild or woodland garden as the self-colours of this genus.

C. racemosus (Genista fragrans) which has been in flower since the early year is now coming into its best stage. This shrub is very much hardier than is generally supposed. Though scarcely so long in the flower sprays, and not so fragrant, G. monspessulanus bears some resemblance to the above. This is a first-rate shrub for massing and one that will bear an abundance of flowers throughout the spring months and often produce a second crop in autumn. G. monspessulanus is easily raised from seeds; the seedlings come true, grow rapidly, and the shrub is perfectly hardy.

Of Cytisus praecox no praise can be too high, but, being a March or early April bloomer here, it is now going off, with C. kewensis and the fragrant C. purgans. Among the lesser kinds one cannot overlook the bright little C. Ardoinii, the rather taller Beanii, nor the rather unique C. purpureus, with its pink and white variety incarnatus.

Veronica Hulkeana might well head any list of spring-flowering shrubs, for not only is it elegant in habit and attractive in foliage but the large terminal spikes of cool lavender colour, which in some lights appears almost a smoke-blue, are irresistibly charming. Though the plant will succeed trained against a wall (and in bleak districts it will be safer there) V. Hulkeana never looks quite so beautiful as when grown so that its long and graceful branches with their up-turned tips are exhibiting their own natural grace by drooping down some gentle slope or rock face. *A. T. Johnson, Talycafn, N. Wales.*

BRAHEA AND ILEX IN SOUTH AFRICA.

I ENCLOSE a photograph which I hope you will consider sufficiently interesting for reproduction in your columns. It represents a specimen of the very handsome Palm, Brahea filamentosa growing in close association with Ilex aquifolium. The latter is rarely seen in South Africa, and I imagine the Palm and Holly are seldom seen growing together in England. The photograph (Fig. 123) was taken in Hamilton Park by Mr. G. E. Johnson, an ardent amateur photographer of Bloemfontein. Hamilton Park, which contains many interesting plants, is under the Parks Department of the Bloemfontein Municipality, and I feel sure the illustration from it will interest many of your South African readers. *A. W. Maynard, Hamilton Park, Bloemfontein, O.F.S., South Africa.*

NOTE FROM AUSTRALIA.

GLADIOLI.

GLADIOLI are amongst the most popular flowers grown in Australia and both the large-flowered and primulinus types are largely cultivated for the cut flower trade. The primulinus hybrids are in great demand as cut blooms and they are to be had from the open garden for nine months out of the twelve.

These Gladioli flower readily from seed within six months of seed-sowing, and the range of colours obtained from a single pod of seed is very varied. The corms are exceedingly easy to grow; their cultivation consists in merely taking out a shallow trench or drill and planting them about three inches deep; keeping weeds down and lifting the corms (with sometimes hundreds of cormlets) about a month after flowering. The corms are rested for a few months in a dry shed and then re-planted.

Plants of the large-flowered type usually take two years to reach a flowering stage. Many beautiful varieties of Gladioli are being raised in Australia; some are to be seen on the show bench with perfectly formed spikes, carrying twelve open flowers and sometimes more.

In the near future Australian-raised Gladioli, Daffodils, and Roses, will be as famous as the Australian-raised Chrysanthemums and Watsonias. *W. R. Warner, Camberwell, Victoria, Australia.*

INDOOR PLANTS.

MEDINILLA MAGNIFICA.

A FINE specimen of Medinilla magnifica is now flowering in the stove in these gardens and carrying over thirty racemes of its delicate rose-pink flowers. For several years past it has produced its flowers in profusion during the month of May.

Medinillas are not grown or seen so frequently now as in former years, as they require a considerable amount of heat at all times to grow them successfully. The only plants I have seen during recent years have been exhibited at the Chelsea shows by Messrs. Russell of Richmond.

The cultivation of the handsome Medinilla magnifica is not difficult. We grow our plants in a compost of fibrous loam and peat with broken charcoal, and silver sand. Plenty of drainage is afforded. Being evergreen, the plants should not be kept too dry during the winter months. During the season of active growth copious supplies of water should be given and the syringe used freely, especially on the under sides of the leaves.

Mealy bug is the Medinilla's worst insect enemy and must be kept in check, otherwise the beautiful racemes of flowers will be spoiled. A word of caution may be given in the use of insecticides early in the year; the large, opposite leaves are in pairs, and it is between these pairs of leaves that the flower buds are formed, consequently an injudicious use of insecticides may predjudice the forthcoming crop of flowers.

One of the peculiarities of the Medinilla in these gardens is this; every year flowers are produced from the hard-wooded stems, devoid of foliage, and these stems are at least six or seven years old.

To all horticulturists who have command of sufficient heat and are desirous of adding to their collection of flowering plants a subject which lasts a considerable time in beauty, I confidently recommend Medinilla magnifica—a native of the Philippine Islands. *J. Hawkes, Cliveden Gardens, Shenfield, Essex.*

THE PLANT COMMONWEALTH AND ITS MODE OF GOVERNMENT.*

(*Continued from p. 276*).

IF after replacement of the cut-off tip the root is laid in a horizontal position, instead of remaining in that position as a tip-less root does, it continues to curve until the tip points once again vertically downward. No less remarkable are the discoveries which have recently been made by the Italian physiologist Ricca on the much investigated subject of the movements of the Sensitive plant, Mimosa pudica, and allied sensitive species. The movements of this plant have often been described and always excite wonder. In tropical countries where the Sensitive plant grows close to the ground and covers large tracts, anyone who walks over it may see the leaves bending down and folding up as his foot approaches as though the plants were shrinking from impending danger. Many explanations have been offered of the significance of these movements; but none seems satisfactory.

Extreme sensitiveness to contact is not peculiar to the species of Mimosa. It is manifested also by other genera of plants, by Neptunia, which like Mimosa belongs to the Legume family, and by Biophytum, e.g., Biophytum sensitivum, a member of the Geranium family. A recital of all the interesting experiments which have been made on Mimosa pudica from the time of Claude Bernard to the present day is beyond my powers or your patience. Nor is the recital necessary for my present purpose, for the new classical experiments of Ricca, and the, as yet unpublished, experiments made recently by Mr. Snow, throw new light on the nature of the message which passes to the leaves when the plant is stimulated as it may be by tapping, shaking, cutting or burning a part of it. Working with strong-growing woody species in the congenial climate of India, Ricca has shown that the excitation set up by stimulating a part of the stem travels in the wood.

Even after all the other tissues of the stem are removed the excitation continues to pass upward and to bring about progressively the characteristic movements of the leaves. If a length of stem above the point to be stimulated be killed, as for example by subjecting it to high temperature, the message still passes and is delivered to the living leaves above the killed region of the stem. That the excitation is of a chemical nature is shown by cutting the stem, interposing a short tube containing water between the severed ends and then stimulating the lower part of the stem. Even under these untoward conditions the message is delivered. The hormone, rising with the water current up the vessels, diffuses through the column of water in the glass tube and, passing into the vessels above the cut travels along them and at each level at which a leaf is borne the hormone passes into the motile pulvinus exciting its tissues so that the turgid cells of the underside of the pulvinus lose water and resilience and, becoming flaccid, no longer bear up the leaf stalk which therefore falls like a flag at half-mast. As in old times, a knocker-up went round the town leaving his noisy message at the appointed doors, so the hormone, albeit more discretely, travels through the watery highways of the plant delivering its chemical message as it goes. Research, however, whilst unveiling old mysteries discovers new ones, and Mr. Snow, who has just come back from studying the behaviour of Sensitive plants in the West Indies informs me that he has confirmed Ricca's wonderful results.

(*To be continued.*)

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* Discourse delivered at the Royal Institution on Friday, March 21, 1924, by Sir Frederick Keeble, F.R.S.

MARKET FRUIT GARDEN.

APRIL was cool and damp, except for the warm spell at Easter. The rainfall amounted to 2.74 inches at my place, which is nearly three-quarters-of-an-inch over the average for the month in the previous ten years. This was disappointing, as one hoped to see the fruit bloom brought on rapidly. Moreover, the frequent rain interrupted spraying and cultivation. However, there were no severe frosts above the ground level, which is something to be thankful for.

It is a late spring, of course, but not a record for lateness as many people imagine. It is about three weeks behind last year, it is true, but that was an early spring. Judging chiefly from the dates of the opening of Plum, Cherry, and Pear blooms the present season is a trifle later than that of 1922, and possibly not quite so late as that of 1919. The first few blooms of Black Diamond Plums were expanded on April 19, and those of Pears on April 24, the blooming of both subjects being general at the close of the month. The first Cherry blooms were seen open on April 22, and there was a full display by April 30. No Apple bloom opened during the month, though some flowers were on the point of doing so. The cuckoo was first heard on April 18.

FRUIT PROSPECTS.

Plums, Pears, and Cherries were open during a dull, showery period, and one feels some anxiety as to the result. There was no frost to harm the bloom, but there were only brief intervals of fine weather, when bees could be seen about their work. Pears and Cherries, which are as full of bloom as they could well be, have still a chance, as they are in full display at the time of writing; but Plums were dropping their petals by the end of the month.

Prospects for Plums are not very bright with me, and could not be expected to be so after last year's punishing attack of aphis and brown rot. Rivers' Early Prolific, Czar, and Belle de Louvain are the only varieties which are full of bloom; and all of these yielded very lightly last year. President gives moderate promise; but Monarch, an inveterate biennial bearer, is quite without bloom. Victoria, which gave the best yield of all last year, is not making much of a show; and Pond's Seedling is still less promising.

Of Apples it is too early to write definitely; but one thing is certain, and that is that I am not going to have a great crop. What looked like fruit buds at one time are turning out, in many cases, to be barren spurs. Some of my plantations, and some varieties in others, will be full of bloom; but there are many misses. If other growers have poor crops, we shall hear a lot about the wood being unripened in the sunless season of 1923. This may have some influence, but not much, I think. How is it that certain varieties, or some batches of trees, are going to bloom profusely? All had the same chance to ripen their wood. In my opinion it is simply another demonstration of the old trouble, alternate year bearing. Trees which had little or no bloom last year are going to bloom well this season, and *vice versa*, though with some exceptions. It is a matter of blooming rather than of cropping. Many trees failed to crop last year, but they bloomed, and even set fruit, which was soon destroyed by cold weather and insect pests. I was afraid last spring, when the trees were in such a bad way, that the crops of the next year would suffer too; because it is within about a month of the opening of the bloom in one season that the buds for the next year's bloom begin to form. Investigators have shown us this. If the trees are blooming profusely, or are weakened by insect pests, they have not the strength to form buds for the next crop. I still think the early autumn manuring overcomes this biennial bearing to some extent; but nothing avails where there is such a plague of pests and diseases as there was last year.

Taking the prospects for orchard fruit generally, there is enough bloom for a profitable harvest if it sets well, if the crop throughout the country is on the light side, and if we are not swamped with imports as we were in 1923.

INSECT PESTS.

Fortunately, we do not appear, so far, to be in for much trouble with insect pests. There were a good many of the stem-mothers of the leaf-curling Plum aphis, but spraying with nicotine and soap before the opening of the bloom has controlled them. Apples are so far particularly free from pests. There are a few suckers (Psylla mali), but aphides are very few in my plantations, where they swarmed last year. In one orchard I have found a good many Winter Moth and other caterpillars, but, generally speaking, it does not seem to be a bad caterpillar year.

So far as fungous diseases are concerned, it is to early to speak; but the wet weather experienced at the time of writing is just the kind to favour scab in Apples and Pears and brown rot in Plums. Warm, dry weather during May is badly needed.

SPRAYING IN RAINY WEATHER.

The best time to spray Apples to kill the aphides, suckers, and young caterpillars, which do so much damage to the bloom, is when the buds have separated out in their clusters, which is not long before the petals expand. If this stage is waited for, there is always some danger of unfavourable weather preventing the work from being finished in time. It happens so this year; but I think we shall just win the race against the bloom; but it has meant pushing on during weather too windy and showery to be ideal for spraying. It is fairly well known that a soapy contact wash may be used quite well when the leaves are wet after rain. This is rather an advantage than otherwise, as the wash runs over the wet surface easily. I also consider it rather beneficial if a shower comes soon after the wash has dried on, as it freshens up the soap and washes it into the bloom clusters and curled leaves. But I have never before carried on during actual rain. This was done for several hours, the wash being nicotine and soft soap. The rain was not at all heavy, but almost continuous. I have just examined the trees sprayed during that time, and have found that the kill is quite as good as is usually obtained under normal conditions. Practically all the young caterpillars not too much protected inside curled leaves or buds have been killed; and very few suckers were to be found alive. I wondered whether the wash would get too much diluted by the rain water to remain deadly, but evidently it did not. I shall not hesitate to continue syraying in similar circumstances again. It must be noted, however, that this refers only to the use of a contact wash, which practically kills as soon as it touches an insect. When spraying with arsenate of lead or a fungicide, dry weather is most important. The object here is to give the leaves a protective coating of chemicals; and the longer this keeps dry the longer will it remain effective. When once it has had a chance to dry on, a few light showers do not remove it entirely; but rain falling before it dries on is fatal to success.

BUSH FRUITS.

Bush fruits look promising so far as bloom is concerned. Red and Black Currants and Gooseberries are showing very well. Of Raspberries nothing can be said yet, but the canes are strong. No Strawberries bloomed in April, but the plants, which at one time were very backward, have quite recovered and now look well.

The young Black Currants are very satisfactory, and should give a good crop if only the bloom sets and the fruit does not "run off," as so often happens. The bushes were severely rogued for reversion in the autumn; and there do not appear to be very many fresh cases amongst the remaining bushes. It is very easy to detect them now that they are in bloom, and particularly when in the bud stage. The normal buds are lavender-coloured and covered with a white down. On a reverted bush there is none of this down, the buds being shiny, small, and reddish-purple. The leaves also are inclined to be small and yellow. There is no better time to detect the trouble. It is easier than the leaf venation method. On the whole, however, I prefer to leave my rogueing until the bushes are fruiting. There is no doubt about the reversion then, and the bushes can be marked for grubbing so soon as the crop has been gathered. *Market Grower.*

VINE MILDEW.

This is an anxious period of the year for those who have charge of vines that have been infested with mildew in previous years. The best security against attack is good cultivation, but the spores of the fungus always seem to be lurking near at hand to develop as soon as favourable conditions present themselves.

So varied are the houses in which Grapes are grown that it is not surprising to find this disease when least expected. Mildew may be killed, but its traces are always left behind, and where the vines have suffered from a bad attack, its recurrence is only prevented by very careful management.

The causes which directly contribute to its development are careless ventilation, and admitting air by the front ventilators during the early stages of growth, especially when done as a means of lowering the temperature. If the ventilators at the top of the vinery are properly regulated, front ventilation may, to a large extent, be dispensed with until the Grapes are near or past the storing period Heavy, cold soils and vineries in damp, unfavourable situations, have much to do with the spread of mildew. In some vineries air may be admitted freely, both through the top and front ventilators, and no harm will occur to the vines, but in others, owing to their unfavourable positions, air cannot be given to the vines through the front ventilators until July without the risk of an attack of mildew. In such cases the front ventilators should not be opened until the berries have commenced to colour. It is much better to permit a high temperature for an hour or two than to lower it by admitting a volume of cold air at the front of the house. The reason why mildew is more prevalent in late vineries is often due to the absence of fire-heat, especially in such weather as we have recently experienced. So sudden are the changes in our climate that sufficient heat to warm the pipes should always be available when required.

As a means of prevention as well as cure, sulphur in some form or other may be used, as wherever sulphur is brought into contact with mildew its destruction is sure. Neglect to use this simple preventive often entails much extra labour and anxiety in dealing with the pest. Where mildew has attacked vines, sulphur should enter largely into the composition of any winter dressing used on the rods. If such dressings are not in favour sulphur alone may be used, as it will adhere fairly well to the bark when mixed with strong, soapy water. It should always be introduced into the hot lime wash used for coating the walls when winter cleansing is done, and as an extra precaution some of the hot water pipes should be coated with sulphur mixed with milk. Prevention is always better than cure, but where a cure has to be effected, it is always a matter of doubt as to the best means of applying sulphur without spoiling the Grapes, as dusting them with this material must be done thoroughly to be effectual, and no matter how carefully applied or the sulphur washed off, some traces are sure to remain on the berries.

The best method of applying sulphur in large vineries is to use a sulphur vaporiser.

Mildew is often communicated to the vines from other plants, and no mildew-affected subjects should be allowed to remain in vineries. Every means should be taken to prevent its development by good cultivation, including careful attention to watering, winter cleansing of the vines and houses and care in ventilating.

The temperature in vineries is apt to fall too low with the dense shade of the vines during a few days of cold, damp weather, and if the pipes are just kept warm, enough heat will be generated to keep the atmosphere buoyant and counteract sudden changes in the temperature when the weather fluctuates. *F. Jordan.*

VEGETABLE GARDEN.

CARROT.

(DAUCUS CAROTA.)

Although large numbers of varieties of Carrots, each differing in colour, form, size and season, have been developed by cultivation there is hardly any difference of opinion amongst botanical writers respecting the parent variety being the wild, white-flowered plant (by some considered poisonous) with which we are familiar. At the same time it may be pointed out that Miller, in the seventh edition of his *Dictionary*, states: "that he had saved seeds of the wild variety, and grown them in the same manner as the garden Carrots but could not improve the roots in the least, for they continued to be small, sticky, and of a hot taste." Consequently he considered Daucus Carota sativa as a distinct species. Against this testimony may be set the statements in *The Vegetable Garden* respecting improved wild Carrots.

About the year 1830 M. Vilmorin, senr. commenced cultural experiments with a view to obtaining from the wild Carrot enlarged and edible roots. In the course of a few years his sowings yielded him plants with fleshy roots of various colours, some of which remained constant for several years, the most remarkable being Improved Wild White which had a fine flavour and colour, but was deficient in sweetness; and the Improved Red Verrières which was regular in shape, with a fine neck and leaf, but not productive. These varieties did not come into general cultivation and were discarded. Doubtless other efforts in the same direction have been made in the meantime, but I have not been able to trace any record of these.

One notable introduction made about this time was the Large White Green Top, which according to Lawson's *Manual*, was introduced into Scotland by Messrs. Vilmorin Andrieux et cie a few years prior to 1839. Since that time some greatly improved forms of this variety have appeared both in England and France and it has become the leading forage variety.

Those who are not slaves to colour and can appreciate a good thing on its merits should be advised to make a trial of the Smooth White Intermediate Carrot, an easily grown high-class variety of exceptional appearance and quality. It is very popular in Canada, and satisfactory wherever it has been grown.

While on the subject of forage Carrots, mention may be made of the yellow and orange coloured varieties of which there are several in cultivation.

Of these the Yellow Intermediate is undoubtedly the most valuable. It is largely grown in the eastern counties of England where a very fine strain has been developed; while on the Continent, and particularly in Scandinavia, it is the leading variety of the day. In form it closely resembles a large St. Valery; is clean-growing and of very good flavour, in addition to which it is very hardy, and specially adapted for winter use. A stump-rooted, lemon-coloured variety named The Doub's is recommended for table use in France, but it does not appear to have gained any favour in Britain. Three German yellow-fleshed varieties, Lobbricher, Pfalzer, and Saalfeld, have never become popular in England, although these are possessed of some excellent qualities.

As the Carrot is liable to sporting and seeing that the Long Yellow was illustrated by Dodonaeus about 1550, it is remarkable that so few yellow varieties have made their appearance. Judging by the illustration given by Dodonaeus, it was a most attractive root, far superior to the rougher Long Red, of which an illustration appears on the same page,

It is when we come to examine the long list of orange and red varieties that we realise what wonderful work has been accomplished in connection with the Carrot. At the outset let it be freely admitted that France leads the way in the number, quality, and use of the Carrot; at the same time Great Britain has no reason to be ashamed of her small share in what has been accomplished. James's Green Top, including the improved form of it known as James's Intermediate, is a widely-grown and standard variety at the present day. It is a sure and heavy cropper, easily lifted, has a wonderful constitution, and eating qualities both for table and stable that cannot be beaten. The old Shaftesbury Short Orange, which has now almost disappeared, was quite the equal of the Guérande or Oxheart, and at the last Crystal Palace Show of the One-and-All Society, easily excelled all the exhibits of that type. Long Red Surrey (an immensely improved Long Orange), is also fast disappearing from cultivation, for it needs the deep sandy soil of Surrey to bring its three-feet roots to perfection; its quality could not be beaten.

For early supplies the early Shorthorn, beloved of the market garden bunchers, still maintains its hold, and as *rouge demi-longue pointue* is highly esteemed in the French Markets. Last, but by no means least, may be mentioned the Long Red Altrincham, a large, very deep red, practically coreless variety, with table qualities that may be equalled but cannot be excelled.

Holland, with soil that is perfect for the cultivation of Carrots, has done very little in the development of this vegetable, but Amsterdam Forcing is the perfection of a forcing variety as grown in Holland. Prior to the war a very large acreage of this Carrot was grown in specially prepared frames near Dordrecht for shipment to South Africa.

The Brabanter, a long, dark-violet variety is grown in Belgium and South Holland. It makes a very popular dish dressed and cut like red Cabbage. A long, thick, pale-red variety, grown for feeding stock round about Vlaake, yields an enormous crop. During the war immense quantities of the roots were dried and ground and found their way into the war bread served out in that country. White bread was at a premium in Holland in those terrible days but Potatos were abundant.

As stated above, Carrots of German origin have never been popular in Britain, and it is a singular fact that in a German catalogue now before me fully two-thirds of the varieties quoted are of French or British origin.

Although the list of French varieties is a long one it is not necessary to go through it in its entirety, as the sorts best adapted for cultivation in this country are comparatively few and fairly well-known; in addition to this the differences are in some cases very slight and often due to some local cause or demand. Omitting all the forcing varieties with the exception of the Parisienne, as they only affect a limited number of gardeners, and require very special conditions to bring them to perfection, there is no doubt that, for private use, the Nantes Half-Long Stump-ended is one of the best varieties grown. It is early, coreless, of good shape and colour, of excellent table quality, and only needs good, shallow soil.

The same remarks apply to the Chantenay Half-Long which is rather shorter, much thicker at the shoulder, and in every respect excellent as a market variety. A special selection of it is known as Early Market.

Another variety adapted to shallow soils is the Guérande, known also as Oxheart from the shape of the root. Although not so deep in colour as the Nantes, and with a very pronounced core which is not tough and stringy. it is a great favourite in southern markets on account of its earliness and exceptional quality. In the tropics it is a regular standby to the vegetable grower.

The last main crop variety, and in some respects the most important, to claim our attention is the St. Valery, also widely known as New Red Intermediate.

The old Long Orange (not Surrey), which it has displaced was seldom satisfactory being often coarse rooted and of a poor colour, although excellent for cattle food and long-keeping. The St. Valery is a good all-round variety, large, shapely, of a good deep colour, with firm flesh, small core, a very heavy cropper and a long keeper; it is good alike on the exhibition table, the dining table and in the horses' stable, but a rich, deep, kindly soil is essential to grow this variety. *S. B. Dicks.*

HOME CORRESPONDENCE.

Young Lads and Horticulture.—It is very difficult to advise lads just what branches of horticulture to study. Many older men who have spent years in responsible positions in private gardens are very anxious as to their future. The point raised in Mr. Leonard Dufton's letter (p. 180) as to really good gardeners being difficult to obtain comes as a surprise. Many head gardeners are working under very great difficulties; not only are they short of necessaries (as suggested by your correspondent), which includes labour, but many employers do not take these matters sufficiently into account when reviewing their gardens. Everyone knows there are good, bad, and indifferent craftsmen in all professions and trades. The gardener cannot throw down his tools at midday on Saturday and leave the place of his labours, care free, until the following Monday morning. When one is fortunate enough to secure a position under an employer who really loves his garden and understands the difficulties, as well as the pleasures, which are connected with the management of the same, many matters may be discussed, and mutual benefit derived therefrom. Perhaps the up-to-date commercial grower adopts this system with his leading men. It would be most beneficial to many readers if nurserymen and landscape gardeners could give any information for the guidance of young lads, and older men. Many middle-aged gardeners have, during the past few years, been thrown out of employment through no fault of their own, and as your correspondent states they have no unemployment pay to draw on, and are only too anxious to secure work, and yet we have a public park's gardener, a prominent trade grower, and, a private employer, informing your correspondent that really good gardeners are difficult to obtain. *Roamer.*

SOCIETIES.

ROYAL GARDENERS' ORPHAN FUND.

The annual festival dinner of the Royal Gardeners' Orphan Fund was held on the 7th inst. at the Hotel Victoria, Northumberland Avenue, W.C. The Treasurer, Mr. Edward Sherwood presided, and there were present one hundred and forty friends and subscribers of this excellent gardening charity, including many ladies. The dinner was a great success and a most enjoyable evening was spent by all present; it was held in the Edward VII Room, a beautiful room, which was made even more beautiful by floral decorations arranged by Mr. Harry Miles.

There were a few toasts, including the usual loyal toasts; the principal one—that of the Royal Gardeners' Orphan Fund—was given by the Chairman, who stated that the Fund was established in the year 1887 to commemorate the jubilee of Her Majesty, Queen Victoria. Mr. Sherwood stated that most industries, societies, etc., had associations for helping those of their members who had fallen on evil days and horticulture had its two charities. The cause of the widow and the fatherless child, he said, appealed to everybody, and the Royal Gardeners' Orphan Fund had met with a very great measure of success during the years it had been established. Since its institution it had distributed no less a sum than £43,000; the money was not given in very large amounts, as each orphan on the register only received the sum of five shillings a week. Although this was not much, it was of the greatest help and received with gratitude by the mothers. The children are available to receive this sum from their birth and until they attain the age of fifteen years, and in certain circumstances for a year or even two years longer. The circumstances of each orphan are considered by the Committee and it may be that the extra time is granted to permit of a child continuing his or her education, so that the chances of "making good" may be increased. Again, when an orphan is ready to go out into the world, the Fund, in certain cases, affords further assistance—money to help in the purchase of clothing, books, tools, etc. There have been cases of orphans having the opportunity of obtaining employment some considerable distance away from their homes, and a bicycle has been necessary, which, without the help of the Committee, the mother would have been unable to obtain. Something like one hundred children are, said Mr. Sherwood, receiving allowances from the Fund, and they include one who is totally blind and another who is so delicate as to need special help from the Fund. The Fund derives most assistance from the owners of gardens, who benefit by the results of the professional gardener, but he appealed to those who work professionally in gardens to help the charity and also to the horticultural trade, which gets a great deal out of gardening. Mr. Sherwood said he would like to see many more annual subscribers, and the Fund would benefit largely if the trade seriously considered the matter. Mr. Sherwood coupled the toast with the name of Mr. Leonard Sutton, one of the Trustees of the Fund.

Mr. Leonard Sutton stated that he was trustee for one hundred children. The gardening profession was one of those numerous industries where men spent the greater part of their lives at work, but did not earn enough money to leave anything behind to provide for their widows and children. Mr. Sutton always associated the Fund with the name of Mr. Sherwood's father, who was a valued supporter of the charity. Mr. Sutton also referred to the Hon. Sir Thomas Mackenzie, who was present, and stated that the R.G.O.F. was greatly indebted to Sir Thomas, for it was through his influence that during the war, when New Zealand was so patriotic as to vote a large sum to English charities, £100 of that sum was allotted to the Fund.

Mr. P. R. Barr, in proposing the toast of "The Visitors," said it was gratifying to see so many visitors present, for it showed that there were many good friends of the Fund. As Hon. Auditor, he sincerely hoped that the appeal would produce very good results. He stated that a donation or subscription of 5s. entitled the subscriber to one vote at the annual election, and a donation of £5 to a vote annually for life. Sir Thomas Mackenzie, who responded to the toast of "The Visitors," said that his fellow countrymen were glad to contribute something to those in distress in this land. £2,500 had been recently contributed by New Zealand farmers towards helping the children of those men who perished during the war. He said it was his privilege to make the acquaintance of Mr. Sherwood's father some twenty-eight years ago and he held his memory in great respect. He was one of the greatest men he had come in contact with. He is, said Sir Thomas, succeeded worthily by his son, who occupies the chair to-day, and in him we see a worthy son of a worthy parent.

At this stage of the proceedings the amount subscribed at or in consequence of the dinner was announced. The principal contributions to the Chairman's list included two hundred and fifty guineas from himself; fifty guineas from Mr. W. Sherwood; fifty guineas from Messrs. Sutton and Sons and ten guineas from Mr. Leonard Sutton; £191 2s. collected by Mr. David Ingamells in Covent Garden Market (including ten guineas each from Mr. D. Ingamells, Mr. H. Miles, Mr. J. Cull, and Mr. M. Larsen; £7 7s. from Mr. Raymond Rochford; £6. 6s. each from Mr. Duncan Tucker and Mr. Walter Turner; and £5 5s each from Mrs. Messer, Messrs. W. T. Ware, Ltd., Mr. A. Dimmock, Mr. J. Linford, Mr. R. A. Witty, Mr. H. S. Stevens, Messrs. Lowe and Shawyer, Mr. T. Windle, Mr. J. Kirk, Mr. A. H. Maxwell, Mr. W. Maxwell, Mr. H O. Larsen, and Mr. J. Collingridge); Mr. Whitpaine Nutting, £57 6s.; Mr. J. M. Bridgeford, £45, including £10 10s. from Mr. A. Watkins, and £5 5s. each from Mr. J. M. Bridgeford and Mr. A. Howard; Mr. G. F. Tinley, £27 7s. 6d., including £10 10s. from Mr. W. L. Bradbury; £5 5s. from the proprietors of the *Gardeners' Chronicle* and £4 from the *Gardeners' Chronicle* collecting box; Messrs. Rothschild and Sons, £26 5s.; Mr. J. F. McLeod, £25, including £5 5s. each from Mr. D. B. Crane and Mr. W. L. Brodie; Mr. J. E. Dixon, £23; Mr. H. J. Jones and friends, twenty guineas; Mr. W. Auton, £15; Messrs. G. Bunyard and Co., £15. Mr. R. B. Leech, £13 13s., including £10 10s. from Mr. A. Rayner; Mr. G. Reynolds, £12; £10 10s. each from the Rt. Hon. the Lord Marshall, Sir Harry James Veitch, Mrs. M. Campbell, Messrs. J. Jefferies and Sons, Mr. Chas. Denny, Mr. E. Manwaring, Messrs. Barr and Sons, Messrs. Corry and Co., and Mr. George Monro; £10 from Mr. J. T. Hemmingway; and £8 from Mr. W. Wells. The total amount came to over £1,200.

Mr. J. F. McLeod, in proposing the health of the Chairman, stated that he was the oldest member of the Committee present in service, but not in years. His senior in service was Mr. Wm. Bates; all would regret to learn of the death of Mr. Brian Wynne, the Secretary, who up to the time of his death had been associated with the Fund longer than anyone else, for he took part in its formation. Mr. McLeod stated that it gave him great pleasure to propose this toast; Mr. Sherwood's father was Hon. Treasurer of the Fund and he was very pleased to think that his son had succeeded in that office. He thanked Mr. Sherwood heartily for presiding at the dinner, for the very able manner in which he had conducted the proceedings that evening, and for his part in making it such a great success. In reply Mr. Sherwood stated that he would like to refer to the valuable work that the late Mr. Wynne had done for the Fund and for the help Mr. Wynne had given him as Treasurer. His thanks were also due to Mr. G. F. Tinley for the great amount of work and assistance he had rendered him during the time he had carried out the duties of Acting-Secretary, and he also wished to acknowledge the excellent work done by Mr. David Ingamells, Chairman of the Committee. Mr. Sherwood stated that he was especially pleased to preside at the dinner this year, for now that he had a child of his own he wished to mark the occasion by founding an allowance for an orphan in perpetuity, such allowance to be named after his son.

During the evening an excellent programme of music was rendered under the direction of Mr. Ralph Norris.

CORNWALL DAFFODIL AND SPRING FLOWER SHOW.

The annual exhibition of the Cornwall Daffodil and Spring Flower Society was held in the Market Hall at Truro on the 6th and 7th inst, and in spite of the very late and unfavourable season there was, nevertheless, a wonderful display of flowers, Rhododendrons and rare flowering shrubs again being one of the main features of the Show. It is gratifying to learn that there was a record number of entries and during the two days over two thousand five hundred people paid for admission. The exhibition was honoured by the following deputation from the Royal Horticultural Society:—Lord Lambourne (President), Sir W. Lawrence, Mr. C. T. Musgrave, Mr. A. E. Bowles, and Mr. W. R. Dykes (Secretary). The judges were Lord Headfort, Mr. Armytage Moore, Mr. Lionel Rothschild, Sir Frederick and Lady Moore.

Among the many exhibitors of Rhododendrons and hardy flowering shrubs were Mr. J. C. Williams, Caerhayes, who showed some magnificent hybrid Rhododendrons, Major H. A. Dorrien-Smith, Tresco; Mr. P. D. Williams, Lanarth; Mr. R. Barclay Fox, Falmouth; Viscount Falmouth, and Sir Arthur V. Vivian, Bosahan.

In the class for twelve varieties of outdoor hard-wooded flowering shrubs or climbers, excluding Rhododendrons, the Rev. A. T. Boscawen, Ludgvan, secured the first prize with an excellent collection, and in a similar class for three varieties of shrubs, Mr. R. Barclay Fox, Penjerrick, Falmouth, won the premier award, followed closely by Mr. W. H. Dowman, Flushing. For three varieties of Acacia, Sir Arthur P. Vivian, Bosahan, took leading honours, the second prize going to Viscount Falmouth, while in the class for three varieties of Australian or New Zealand hardwooded shrubs, the Rev. A. T. Boscawen was again first with a very fine selection. Miss Daubuz, Truro, led in the class for three blooms of double varieties of Camellias, and Mr. R. Barclay Fox secured the first prize in a similar class for single varieties.

The classes for Rhododendrons attracted many competitors and in the leading class for twelve trusses of hybrid Rhododendrons, Mr. J. C. Williams was deservedly awarded the first prize with a most charming selection; Captain Tremayne Carclew, Perran-ar-Worthal, was placed second. Mr. A. M. Williams was the first-prize winner in a similar class for twelve distinct Rhododendron species, and Mr. R. Barclay Fox, second; while in the class for three sprays of large-leaved Rhododendrons, Sir Arthur P. Vivian gained the premier award. Mr. A. M. Williams was also successful in the class for three vases of fragrant Rhododendrons of the "triflorum" type and Mr. P. D. Williams, second. The last-named competitor led in the class for three vases of deciduous Rhododendrons of the Azalea type and Mr. Barclay Fox took the lead in a similar class for highly-scented Rhododendrons, and this competitor was also successful in the class for three vases of Azalea mollis hybrids. In the class for three vases of Chinese Rhododendrons, Mr. A. M. Williams was first, and for three vases of Rhododendrons of the Azalea type, Mr. H. Grigg, Tamerton, Foliott, was the first prize winner. Mr. P. D. Williams was a successful competitor for a spray or bunch of Rhododendron, any variety, and Mr. A. M. Williams, Launceston, secured the first prize for a spray or bunch of a Chinese species.

There were two or three classes restricted to Roses and Mr. S. Climas, Redruth, led in the one for six vases of any variety. Mr. A. M. Williams secured the first prize for six vases of Carnations, any variety, while for three pots of Auriculas, three varieties, Mr. W. P. Mitchell, Truro, was awarded first prize. This competitor also led in the class for six pots of Schizanthus. For a collection of Alpines not exceeding twelve varieties, Mrs. Magor, St. Tudy, secured the premier award, and in the class for four plants of Polyanthus, different varieties, the Misses Rashleigh, Truro, were placed first. In a similar class for three plants of one variety, Mr. W. H. Dowman was the chief prize winner and for three plants of single Primulas, three varieties, Miss C. C. Rogers was placed first. Mr. F. G. Lawson, Truro, excelled in a class for a collection of Tulips not exceeding fifteen vases, six stems of each, and Miss Daubuz was second. The last-named competitor led in the class for six varieties of Cottage Tulips, and Major G. T. Williams, Perranwell, excelled in the class for six varieties of Darwin or Parrot Tulips. The same competitor gained first prize in a class for three varieties of Darwin or Parrot Tulips.

The class for a collection of hardy, unforced spring flowers, not exceeding twelve varieties, but excluding hard-wooded flowering shrubs, attracted keen competition, and Mrs. E. P. Rogers was placed first with a highly creditable selection, while in a similar class restricted to six varieties, Mr. T. R. Bolitho, Heamoor, was awarded first prize.

The Royal Horticultural Society's deputation made the following awards:—

Gold Medals:—To Mr. J. C. Williams, for a collection of Rhododendrons, species and seedlings; and Messrs. R. Veitch and Son, Exeter, for the most meritorious exhibit—flowering and other choice shrubs.

Silver Flora Medal:—To the Devon Rosery, Torquay, for a meritorious group; Mr. F. G. Lawson, Truro, for a collection of Tulips; Messrs. Treseder and Co., Truro, for flowering shrubs; Rev. A. T. Boscawen, for outdoor hard-wooded flowering shrubs, and Mr. R. Barclay Fox, Falmouth, for outdoor hard-wooded flowering shrubs.

Silver Banksian Medal:—To Major A. A. Dorrien-Smith, Isles of Scilly, for flowering shrubs; Major G. T. Williams, Devoran, for Darwin Tulips; Miss Daubuz, Kea, for Cottage Tulips; Mr. A. M. Williams, Launceston, for Rhododendrons; Mrs. E. Powys Rogers, Tregye, for hardy unforced spring flowers; Mr. H. W. Grigg, Tamerton, for evergreen Azaleas; Mr. A. M. Williams, for Chinese mountain species of Rhododendrons, and Mr. Barclay Fox, for highly scented Rhododendrons.

ROYAL HORTICULTURAL.

May 13 and 14. The exhibition on the occasion of the fortnightly meeting held at Westminster on the above dates, again filled the whole of the building. Hardy plant lovers found much to admire in the many excellent groups of these flowers. The Gold Medal display of Hippeastrums from Lt.-Col. Sir Geo. L. Holford attracted much attention and numerous novelties were submitted for Awards, the Floral Committees recommended two First-Class Certificates and five Awards of Merit.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Jas. O'Brien, C. J. Lucas, H. T. Pitt, Henry H. Smith, H. G. Alexander, Arthur Dye, Frederick K. Sander, John C. Cowan, E. R. Ashton, J. Wilson Potter, Charles H. Curtis, and John Cypher.

First-Class Certificate.

Laelio-Cattleya Imperatrix Regina (*C. Mendelii × L.-C. Martinetii*) from Lt.-Col. Sir George L. Holford, C.I.V., K.C.V.O., Westonbirt, Tetbury (gr. Mr. H. G. Alexander). One of finest Laelio-Cattleyas, and one of the best examples of high culture ever staged. In size and fine shape the C. Mendelii and the C. Mossiae in L.-C. Martinetii predominate. The plant bore a noble, four-flowered inflorescence, the broad blush-mauve sepals and petals being eight inches across. The broad and showy labellum is intense crimson-purple, lighter at the margin, and has a bright yellow disc with a few red lines at the base.

Cultural Commendation.

Odontioda Lambeauiana, Westonbirt variety (*Cochlioda Noezliana × Odm. Lambeauianum*) from Lt..Col. Sir Geo. L. Holford. The plant bore three branched spikes of brilliant dark scarlet flowers with a prominent yellow crest at the base of the lip.

Other Exhibits.

Lt.-Col. Sir Geo. L. Holford also showed a charming plant of Laelio-Cattleya Freda with a fine show of large Apricot-yellow flowers of the size and shape of those of C. Mossiae.

J. J. Bolton, Esq., Claygate Lodge, Claygate (gr. Mr. S. Lyne), sent a splendidly grown example of Odontoglossum crispum var. Renown with pure white flowers over four inches across; it is one of the best of the home-raised class.

Groups.

A Silver Banksian Medal was awarded to Messrs. Stuart Low and Co., Bush Hill Park, and Jarvisbrook, Sussex, for a well-arranged and interesting group in which were many rare species. At the back were the scarlet Epidendrum radicans with Odontoglossums and Odontiodas, fronted by Cattleyas, Laelio-Cattleyas and Brasso-Cattleyas. Specially noteworthy were Cattleya Dusseldorffei Aquinii its rose flowers bearing the characteristic purple mark of the Aquinii type on the petals; and a new form of Lycaste Skinneri named Tackii, which opens with a green shade, but changes to pure white. The flower of the last is one of fine substance and shape. Among species were the rare Dendrobium falcorostrum of the D. speciosum class; the very rare and pretty Odontoglossum platychilum with a showy rose-coloured lip; some fine forms of Miltonia vexillaria; Dendrobium infundibulum of the large-flowered type; Bulbophyllum Lobbii in several forms, and others of the "botanical" class.

Messrs. Armstrong and Brown, Orchidhurst, Tunbridge Wells, showed a splendid example of their new Odontoglossum Harmony (Dora × Mars) with a spike of thirteen large Tyrian-purple flowers, shaded with crimson and with slight white markings at the margins.

Narcissus and Tulip Committee.

Present: Mr. E. A. Bowles (in the Chair), Sir Daniel Hall, Mrs. Brodie, Rev. J. Jacob, Messrs. Geo. Monro, H. V. Warrender, W. R. Dykes, J. W. Jones, W. B. Cranfield, P. R. Barr, J. de Graaff, C. H. Curtis, G. W. Leak, G. Churcher, F. H. Chapman, W. F. M. Copeland, C. Titchmarsh, J. D. Pearson, and C. W. Needham.

Groups.

Messrs. Barr and Sons showed a large collection of Narcissi, and some of the outstanding varieties were Tuscany, a large

Incomparabilis with large cup; Selembo, a magnificent bloom, with orange-red cup; Horace, Will Scarlett, Homer, Hera, and Cleopatra, a large yellow trumpet variety (Silver-Gilt Banksian Medal). Darwin and Cottage Tulips were also shown in splendid form by this firm and included Scarlet Perfection, Corydon, purple; Moonlight, yellow; Coquette, rose-pink, and Psyche, bright rose (Silver Banksian Medal).

Narcissi were shown in splendid form by Messrs. J. R. Pearson and Sons, Ltd., the Poeticus and Incomparabilis sections being well represented. Of the former class good varieties were Sonata, Comus, Snow King, Caedmon and Epic, and other good flowers were Princess Miriam, a white Barrii of good form; Early Surprise, a yellow Barrii, and Hera, together with a number of high quality seedlings (Silver Banksian Medal).

Messrs. R. H. Bath, Ltd., provided a group of early single and double Tulips. Double varieties were represented by Couronne d'Or, golden yellow; Vuurbaak, intense scarlet; Brimstone Beauty, pink, and alba maxima, white Couleur Cardinal deep scarlet; Hobbema, salmon-pink; White Swan, Brilliant Star, scarlet, and Rose Luisante, deep pink, were very fine single varieties (Silver-Gilt Banksian Medal).

A small group of Darwin Tulips was also staged by Mr. B. Pinney.

Floral Committee.

Section A.—*Present:* Messrs. Henry B. May (in the Chair), J. F. McLeod, E. R. Jones, J. M. Bridgeford, Andrew Ireland, M. C. Allwood, J. B. Riding, W. H. Page, G. W. Leak, W. Stephens, D. B. Crane, Chas. E. Pearson, Arthur Turner, H. J. Jones, W. Howe, W. P. Thomson, W. B. Gingell and W. D. Cartwright (Sec).

Section B.—*Present:* Mr. G. W. Loder (in the Chair), Sir W. Lawrence, Messrs. W. J. Bean, E. A. Bowles, T. Hay, G. Yeld, Clarence Elliott, C. Musgrave, G. Reuthe, Reginald Cory, R. W. Wallace, H. D. McLaren, F. Preston, W. B. Cranfield, C. Williams, R. C. Notcutt, E. H. Wilding, and H. V. Warrender.

First Class Certificates.

Daphne rupestris grandiflora.—A very charming form of Daphne rupestris (syn. D. petraea) and a very valuable introduction. The tubular flowers are much larger than in the type and of a delicate shade of pink. The plant exhibited was smothered in bloom. Shown by Messrs. R. Tucker and Sons, Oxford.

Iris Turkoman.—This hybrid was raised between Iris stolonifera and I. Korolkowi. The flowers are very graceful and the colouring is an admixture of copper, bronze and purple. The veining is very delicate and there is a prominent crest of bright blue colour. This plant received an Award of Merit at the Chelsea Show, 1919. Shown by Mr. W. R. Dykes, Merton.

Awards of Merit.

Cerasus serrulata var. Ojochin.—A Japanese variety possessing large white single flowers and bronze-green young leaves. A very striking plant. Shown by Mr. R. C. Notcutt, Woodbridge.

Geum reptans, Keston type.—A very fine form, the flowers being much larger than in the type, of bright yellow colour, and produced on stems about six inches high. Shown by Mr. G. Reuthe, Keston,

Primula hybrida Lady Thursby.—A. P. pulverulenta hybrid bearing spikes of coral pink flowers of large size. Shown by Mr. G. H. Dalrymple, Bartley, Southampton.

Pyrus (Malus) Wisley Crab.—A very free-flowering Apple, the branches bearing an abundance of large single blooms of purplish rose colour. Shown from the R.H.S. Gardens, Wisley.

Cyathodes ericoides.—A prostate evergreen shrub belonging to the genus Epacridaceae. The branches are hard and woody; the flowers are small, tubular, and of milk-white colour. Shown by Messrs. Prichard and Co., Westmoor.

Other Novelties.

Mr. W. R. Dykes showed a number of Tulipa species including T. Tubergeniana, with fiery scarlet flowers of large size; T. Maximowiczii, with pointed perianth segments and black base, the colour resembling that of Anemone fulgens; T. Orphanidesii var., with bronze flowers, and unnamed species from Turkestan and Asia Minor.

Groups.

The main feature of the show was the group of Hippeastrums from the gardens of Lt.-Col. Sir Geo. L. Holford (gr. Mr. F. J. Clark), Westonbirt, Tetbury, Glos. The specimens were magnificently grown and numbered about one hundred and twenty distinct varieties, all of which were in perfect health and remarkable for their well-flowered large spikes. Of the many varieties a few of the best were Goliath, scarlet and white; Pavlova, white; Peach Blossom, rose and white; Red Lion, orange-scarlet; Rose Velvet, rose; Flashlight, orange-scarlet; Sigismund, salmon; White Foam and Gladiator, scarlet and white (Gold Medal).

A very fine group of Gardenias was staged in one corner of the Hall by the Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Elstree. The specimens were of large size, freely-flowered and excellently grown (Silver-Gilt Banksian Medal).

Hybrid Echiums, of mammoth size, were shown by Lady Rayleigh, Terling Place, Chelmsford (Cultural Commendation)

Mr. E. H. Watson, The Priory, Mill Hill, showed a pretty group of greenhouse plants represented by excellently grown specimens of Calceolaria profusa and C. p. hybrids, a pretty unnamed Schizanthus with crimson and white petals, and Heuchera Priory Beauty (Silver-Gilt Banksian Medal).

The Mental Hospital, Napsbury, St Albans, provided a display of greenhouse plants and forced hardy flowers, including Carnations in variety, Calceolaria Stuarti, Campanula persicifolia in blue and white shades; a selected strain of Geum Mrs. Bradshaw, Pelargonium Clorinda, and Saxifraga pyramidalis (Silver Banksian Medal).

Messrs. Stuart Low and Co. showed a bright group of Carnations, Roses and greenhouse plants, the last including Psoralea pinnata, blue; Fabiana imbricata, freely studded with white flowers; Chorizema ilicifolium, and Acacias in variety (Bronze Banksian Medal).

Messrs. Allwood Bros. also showed a choice collection of Carnations and many varieties of Dianthus Allwoodii (Silver Banksian Medal) while from Mr. C. Engelmann came a small group of these flowers, the chief varieties being Nigger, Laddie, Circe, White Enchantress, and Maine Sunshine (Bronze Banksian Medal).

Roses were shown in very fine condition by Messrs. B. R. Cant and Co., who included the varieties Phoebe, cream; Covent Garden, red; America, pink; and Lady Wakefield, a new variety of a delightful coppery salmon shade (Silver Banksian Medal). Polyantha Roses were also exhibited by the Rev. J. H. Pemberton, the chief varieties being White Echo, Baby Faurax, purple; Juliana, coral pink; and Edith Cavell, red, and Messrs. C. Cant and Co., also had a good exhibit of Roses in which Hybrid Tea varieties predominated (Bronze Banksian Medal). Messrs. Sylvester and Co. staged excellent bowls and epergnes of Roses (Bronze Banksian Medal).

Alpine and show Auriculas were exhibited in splendid form by Mr. James Douglas (Silver Banksian Medal), and Azaleas were staged in quantity by Messrs. R. and G. Cuthbert (Silver Banksian Medal).

Messrs. L. R. Russell, Ltd., made a feature of the highly perfumed Rhododendron fragrantissimum, with large white flowers; Azalea rosaeflora, salmon-pink, and A. malvatica, purple (Silver Banksian Medal).

Spring-flowering trees and shrubs were staged by Messrs. R. C. Notcutt, and the genus Pyrus was represented by well-flowered specimens of P. Arnoldiana, with large pink flowers; P. Frau Louise Dittmann, a semi-double variety, with large pink blooms; P. Eleyi, a pretty hybrid with deep bright red flowers, and P. Halliana, almond-pink. Other meritorious subjects were Cytisus Cornish Cream and the deeper colour C. Osbornei, C. Beanii, bright yellow; Viburnum Davidii, Fremontia californica, with large, yellow flowers, and Cerasus Ukon, a magnificent plant bearing large trusses of white flowers (Silver Banksian Medal).

Mr. Charles Turner displayed cut sprays of flowering shrubs, including Cerasus Avium flore pleno, a mass of white; Eleagnus edulis, Amelanchier alnifolia, Magnolia Lenné, with large deep lilac flowers, and Ribes aureum praecox (Bronze Banksian Medal).

Mr. George G. Whitelegg occupied a double width of tabling with a wide variety of Kurume Azaleas, Cerasus Hisakusa, Cytisus decumbens, yellow; Kalmia latifolia and Daphne Cneorum (Silver Banksian Medal).

Messrs. Cheal and Sons, Ltd., showed the new Berberis stenophylla Crawley Gem, Cytisus Beanii, profusely flowered specimens of Magnolia Soulangeana, Pyrus and Azaleas in variety, and large specimens of Prunus Hisakusa.

The new hardy crimson Broom, Cytisus Dorothy Walpole, was again shown by Messrs. Watson and Sons, Ltd.

A very pretty group of Alpines and hardy flowers was staged by Messrs. Maurice Prichard and Sons, who included specimens of Anemone alpina sulphurea, Trollius Early King, a free-flowering plant with large, globular, deep yellow blooms; Iris susiana, Geum montanum luteum, Daphne Cneorum, and Ranunculus gramineus (Silver Banksian Medal).

Messrs. John Waterer, Sons and Crisp, Ltd., displayed Rhododendrons in a low, rectangular bed, and of especial merit were the varieties Simplicity, a delicately pink-tinted bloom on white ground; Corona, bright cerise red; Lady Decies, the blue-tinted blooms of which are produced in large trusses; Loder's White, pure white; Starfish, pink with the upper petal spotted crimson, and Alice, deep pink. The same firm also showed hardy flowers, which included large clumps of Primula chionantha, with milk-white flowers produced on stems about eighteen inches high; Trillium undulatum, with white flowers marked with a triangular mark of red in the centre; Phlox subulata B. E. Chambers, pale blue; and Daphne Jerlotii (Bronze Banksian Medal).

A miscellaneous group of flowers was also staged by Mr. G. Reuthe. Geum reptans Keston form, with large deep yellow flowers; Anemone patens, Androsace arachnoidea, with pure white flowers, and Erica mediterranea glauca, were well represented, together with a collection of Rhododendron species and hybrids (Silver Banksian Medal).

Irises, Violas, Polyanthus and Primroses were shown in variety by Mr. G. A. Miller (Bronze Banksian Medal) and the Misses K. and E. Hopkins also had a bright group of miscellaneous hardy flowers.

The large-flowered strain of Anemone St. Brigid was again shown in a wide range of colour by Messrs. Reamsbottom and Co., and Messrs. Prichard and Co. were responsible for a collection of Alpines in pots of which Cyathodes ericoides, Silene saxatilis, pale lilac; Dryas Lindermannii, Campanula Allionii and Geum Rossii were a selection (Bronze Banksian Medal).

Mr. Clarence Elliott made a feature of Gentiana acaulis, Lewisia Tweedyi, Primula secundiflora, Dianthus microlepis rumelicus, pink, and the double-flowered Cheiranthus Harpur Crewe (Bronze Banksian Medal).

Messrs. Bakers Ltd., showed a selection of flowering shrubs including Viburnum Carlesii and Kalmia latifolia, together with Aubrietias, Saxifrages and Primulas in variety (Bronze Banksian Medal).

Geum Heldreichii splendens, with deep orange red flowers, the scarlet Verbena chamaedryoides, and Incarvillea grandiflora were shown by Mr. Fred G. Wood in a large collection of hardy plants (Bronze Banksian Medal), and Messrs. Cheal and Sons included specimens of Lewisia Howellii, Oxalis adenophylla, and Ajuga reptans variegata, in their exhibit of hardy flowers. The same firm also displayed Mignon and Star Dahlias in variety (Silver Banksian Medal).

Messrs. Skelton and Kirby made a neat display of Alpines and included Convolvulus Cneorum, Geum montanum, and Saxifragas in variety (Bronze Banksian Medal). Polyanthuses in a variety of colours were staged by Messrs. J. and A. H. Crook. Messrs. R. Tucker and Sons made a feature of Dielytra eximia, with lilac purple flowers. Silene acaulis aurea, Hutchinsia alpina, and Onosma Bourgaei, with white, pendulous blooms (Bronze Banksian Medal).

Messrs. Carter Page and Co., Ltd., were again represented by a very bright group of Alpines in which figured large clumps of Anemone sylvestris, Primula Sieboldii Beauty, P. Red Hugh, and Aubrietia Attraction. Violas, displayed in bowls, were also shown in variety by this firm (Bronze Banksian Medal).

A bright collection of Violas was staged by Mr. W. Yandell, and included Queen of the Whites, Master Banks, pale yellow; Bridal Morn, blue; W. H. Woodgate, pale mauve; and Admiration, purple (Bronze Banksian Medal).

Messrs. G. Bunyard and Co., Ltd., made a display of Irises of the Regelio-Cyclus type including the varieties Charon, bronze purple, delicately marked; Isis, purple; and Osiris, light purple. Alpine plants were shown towards the front of the exhibit (Silver Banksian Medal).

Messrs. Gavin Jones and Ingwersen, showed a fine batch of Gentiana acaulis together with masses of Primula farinosa, Geum montanum, Androsace sarmentosa, A. coronopifolia and Ranunculus liniflorus, while from Messrs. Maxwell and Beale came Dryas Sundermannii, Rosa pumila and Anemone Pulsatilla rubra (Bronze Banksian Medal).

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (Chairman), J. Cheal, W. Poupart, H. S. Rivers, P. C. M. Veitch, A. Bullock, S. B. Dicks, W. F. Giles, P. A. Tuckett, A. Metcalfe, E. Beckett, G. F. Tinley, W. H. Divers, E. A. Bunyard, W. G. Lobjoit, F. Jordan, G. Reynolds, H. Markham, F. G. Treseder and A. N. Rawes.

There were only two exhibits before this Committee, the one, a number of pot plants of Strawberries bearing a good crop of ripe berries, shown by Messrs. Waterer, Sons and Crisp, Ltd.; the other, seven varieties of imported Apples, shown by the New Zealand Fruit Growers' Federation. The New Zealand Apples were in splendid condition, and the Secretary was requested to send a letter to the Secretary of the Federation congratulating his Society on the quality, fine packing and grading of the fruits. They included the varieties Cox's Orange Pippin, Dunn's Favourite, Jonathan, Premier, King David, Shorland's Queen and Parlin's Beauty. The fruits of Cox's Orange Pippin were of exceedingly fine quality and the next best variety for eating was Jonathan.

Obituary.

Thomas Jamieson.—Not a few friends will regret to learn of the death of Mr. Thomas Jamieson, Chev. Fr. and F.I.C., which took place at his residence, Glasterbury, Milltimber, near Aberdeen, on Saturday, 3rd inst. Born in Aberdeen over seventy years ago, Mr. Jamieson was a life-long student of the natural sciences of botany, chemistry, and animal physiology. His researches in the realm of botany were of considerable value to the science. He made a study of the means by which plants absorbed and assimilated nitrogen and nitrogenous compounds, and in 1905 he announced that he had discovered that plants absorbed nitrogen from the air direct through their leaves, the accepted scientific theory hitherto being that the sole medium of nitrogenous absorption was through the root hairs. The theory attracted much attention in scientific circles, and was supported by several authorities on the continent of Europe. Mr. Jamieson was widely known in connection with agricultural research work, wherein he accomplished results which were of great benefit to the agricultural community. In connection with the analyses of fertilisers he took a prominent part twenty years ago, and was a keen advocate of the utilisation of slag as a means of supplying phosphatic fertilisers to the soil. In this direction he did capital service by the discovery that plants were fertilised as effectively by insoluble phosphate as by soluble phosphate, and, despite the fact that in later years slag grew poorer in quality, and other phosphatic fertilisers came more into vogue, his research work was widely appreciated and recognised. For over twenty years Mr. Jamieson acted as director of the North of Scotland Agricultural Research Association, in which position he did much useful and thoroughly practical work, particularly at the experimental station at Glasterbury. The success that attended those experiments gave rise to a similar organisation in Sussex, the direction of which Mr. Jamieson was asked to undertake and did so for twelve years. Botany, it must be admitted, was Mr. Jamieson's favourite subject, and he gave close attention to the chemistry of plant life—his research work in this department and in other phases of agricultural science gaining him much more than a local reputation. Many honours came his way during his fine career. He was appointed many years ago a Fellow of the Chemical Society, an original Fellow of the Institute of Chemistry, and a corresponding member of the French National Society of Agricultural Chemists. Mr. Jamieson had many friends among Continental chemists, and, in consideration of his work in agricultural research, the French Government conferred upon him the honour of Chevalier of the Legion of Honour. For nearly forty years Mr. Jamieson acted as city analyst of Aberdeen, retiring from that position over a year ago.

John Mackie.—We have to record the death of Mr. John Mackie, gardener at Kellie Castle, Pittenween, Fifeshire. Mr. Mackie died on May 8th, and his funeral at Carnbee Churchyard was largely attended. He is survived by Mrs. Mackie, for whom much sympathy is felt in the district.

SCHEDULE RECEIVED.

Newcastle Flower Show.—Exhibition to be held on Tuesday, Wednesday, and Thursday, September, 2, 3, and 4.—Secretary, Mr. R. H. Newton, 14, Saville Row, Newcastle.

CATALOGUES RECEIVED.

Daniels Bros., Ltd., Norwich.—Flowers for Summer beds and borders.

G. Beckwith and Son, The Nurseries, Hoddesdon, Herts.—New Roses (wholesale).

Dickson's Nurseries, Ltd. — Bedding Plants and Dahlias.

ANSWERS TO CORRESPONDENTS.

Campanula with Excrescences: *H. P. K.* There is no fungus present on the specimen shoots, and the excrescences appear to be solidified latex which has exuded from the stem owing to a bruise or insect damage.

Diseased Azaleas: *A. A. W.* The Azaleas are affected with the fungus Exobasidium rhododendri. All leaves showing the white and pinkish "bloom" should be removed and burned. As soon as the plants pass out of flower they should be sprayed with a solution of liver of sulphur made by dissolving one ounce of the compound in three gallons of water.

Insect Eating Cucumber Stems: *C. R. E.* The insect eating into the stem of the Cucumber is a wireworm, though not one of the common forms. It belongs to the genus Corymbites and is probably Corymbites cupreus. It is not usual to find this insect attacking greenhouse plants, but it has probably been introduced with rotted turf. It is not likely to become a pest and its occurrence must be looked upon as fortuitous.

Moth for Identification: *G. K.* The name of the Moth is the Eyed-Hawk Moth, Smerithus ocellatus.

Names of Plants: *E. J.* The specimen is Helleborus foetidus, a British species, and it is wild in Hampshire and Sussex. It will thrive in ordinary soil, but should be given a shady spot. It is not generally listed by nurserymen, but no doubt Messrs. Barr and Sons, King Street, Covent Garden, will be able to supply plants. *W. R. & S.* Rhododendron niveum. We cannot undertake to name florists' varieties of Camellias. The flowers received from you represent poor varieties, and some appear to be just ordinary seedlings of Camellia japonica. *O. W.* Apparently a small scrap of Lonicera nitida. *Rex.* Spiraea arguta. *G. R. S.* 1, Fritillaria Meleagris alba; 2, Spiraea arguta; the large-leaved Berberis is B. Bealei and the smaller-leaved species, B. stenophylla. *S. H. H.* Sprekelia formosissima. *J. D., Norfolk.* Cornus Mas.

Peach Trees Failing to Set Fruit: *S. J. F.* It is not often such a complete failure occurs, as you report, for two years in succession. It is quite possible the temperatures fell too low during the recent severe frosts. In a cold house and such sunless weather, you did wrong to spray the trees, but this is not the sole cause of your failure. The blossoms sent were small and imperfect, such as might be expected to develop on imperfectly matured wood, which carried leaves until near Christmas. It is difficult to suggest a complete remedy without seeing the trees, but a safe course to pursue would be to root-prune the trees and partially lift the roots, adding plenty of lime rubble, which the soil appears to lack. If this were done in September, fresh roots would be made in time to assist the trees next season.

Romneyas: *H.* Apparently the R. trichocarpa you refer to is merely a misspelling of R. trichocalyx.

Triaspis Nelsonii: *P. H. R.* The genus Triaspis is a small one belonging to the Natural Order Malpighiaceae. The plants are natives of tropical Africa, and the few in cultivation appear to be stove climbers, propagated in much the same way as the Diplandenia. T. Nelsonii apparently comes from a district farther south than T. odorata, which has fragrant yellow flowers, but so far as we are aware, it is not in cultivation in this country. We presume it requires somewhat similar treatment to T. odorata.

Communications Received.—H. T. B.—K. B.—W. A.—H. M.—Sister S.—C. R. E.—W. B. H.—C. N.—A. F. J.—C. J. T.

THE STATELY FOXGLOVE.

THE
Gardeners' Chronicle

No. 1952—*SATURDAY, MAY* 24, 1924.

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SUPPLEMENTARY ILLUSTRATION.
The Stately Foxglove.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 57·0.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 21, 10 a.m.: Bar 30°; temp. 70°. Weather, Sunny.

Leeks.

THE Leek, although when well grown and of good variety is one of the best of winter vegetables, enjoys relatively little popularity in the south. In northern England and in Scotland, on the other hand, it is well grown and highly prized. Something of the comparative neglect from which this vegetable suffers in the south may be due to the fact that some varieties are of strong and almost rank flavour, although it is possible that the large variety of winter vegetables which a skilful gardener in southern gardens can produce during the winter months makes the cultivation of Leeks less necessary than in more northern districts. This vegetable has, however, a virtue which should commend it to gardeners who are engaged in bringing heavy land into a fertile and easily worked condition. Few garden crops break up the soil so well. The roots of Leeks form a network in which small soil masses are enclosed, and when the roots die the soil about them loses not a little of its stickiness. An interesting series of trials of varieties of Leeks has been conducted during the last few years by Mr. A. H. Breamer at the Norwegian Vegetable Research Station near Christiania. The trial included a large number of varieties and was directed to ascertain which of them excel in flavour, hardiness and cropping powers. As is always the case, it was found that the older a variety the more difficult is it to obtain that variety true to name. The trials, which extended over three years, indicate that there is some measure of correlation between flavour and frost resistance on the one hand, and colour of foliage on the other. The varieties with grey-blue foliage have a milder flavour and withstand winter conditions best. Those with green or yellowish-green foliage have a stronger flavour and are less resistant to frost. Needless to say, the flavour may be mitigated by earthing-up. Of the Leeks in the trial Sutton's Prizetaker headed the test; others which proved superior were Dobbie's Champion Leek and Lyon Selected. These are all good for autumn and winter use. For winter and spring consumption the varieties which proved of high merit in the trials were Sutton's Improved, Musselburgh, and Sutton's Royal Favourite—all short-stemmed. Another good variety was the Paris kind, Tres long d'Hiver. It is a very good thing that all garden vegetables should be submitted from time to time to tests of this kind and we hope that the Royal Horticultural Society, which has done so much by its systematic trials to maintain a high standard of vegetables will review its list of trials during the past decade and include each year a trial of one or other of the less important garden vegetables. An example of the usefulness of such trials may be given. Couve Tronchuda is an excellent vegetable not only for feeding to animals but also for eating. Last year a household was promised as a special delicacy a vegetable unknown to it. The vegetable was Couve Tronchuda and when it was put on the table its rank smell and ranker taste caused both nausea and hilarity. Investigation showed that the cook was not at fault, but that the variety was a poor one. In consequence it will be difficult to persuade the members of that household to submit to a further experiment with that vegetable, a good variety of which is, notwithstanding, excellent, and when well grown, succulent and of delicate flavour. Whilst congratulating the Norwegian Station on its investigations into varieties of vegetables we would express the hope that the authors will provide full summaries of the results either in English or in French; for, unfortunately, many potential readers lack the linguistic knowledge to enable them to read the results in the original.

Our Supplementary Plate.—Old-time gardens furnished with old-fashioned flowers have always a great charm and all will admit that our forbears knew how to garden finely with a much smaller wealth of subjects than is available to the modern gardener. Of these old-fashioned plants none is more stately or imposing in appearance than the Foxglove, and we may take a special pride in the fact that of all the numerous species of Digitalis, our own wilding is the most beautiful. In early summer the wild Foxglove beautifies our woodlands—the stately spikes always show to best advantage when displayed against the greenery of dense undershrubs. Those in the group depicted in the supplementary illustration presented with this issue are thrown into bold relief by the background of trees, and the vagrant manner in which they are planted adds to their charm. But whilst Foxgloves are most appropriately suited for the undressed quarters of the garden, and especially the wild garden, they are attractive amongst borders of other hardy flowers, being especially suited for the background of herbaceous borders and in the foreground of shrubberies. They are also appropriate for planting near banks and ditches and on the confines of the rock garden, as is the case of those in the supplementary illustration. The blossoms are of a variety of colours, ranging from white to cream through rose to red and deep red and the spots and blotchings of deep purple and maroon in the throat are an additional charm. Some of the modern strains of Foxgloves, such as that grown by Mr. W. B. Cranfield in his beautiful gardens at Enfield, are a great advance on the type, and those who love old-fashioned flowers would be well advised to include some of these stately Foxgloves in suitable parts of their gardens.

Old Kewite J.P.'s.—Mr. Harry Williams, gardener to Mrs. Lanyon, Tolvean, Redruth, and an occasional contributor to these pages, has been elected Chairman of the Redruth Urban District Council and appointed a Justice of the Peace; Mr. Charles H. Curtis, Managing Editor of *The Gardeners' Chronicle* has been elected Chairman of the Brentford Urban District Council and appointed a Justice of the Peace.

French Chrysanthemum Society.—The current number of *Le Chrysanthème*, the official organ of the above-named Society, contains an unusually long list of new members, many of whom are residents in Tunis, where there is an active branch of the Society. The total number of members up to date is 1174, of which fifty-eight are affiliated societies. We notice that the widow of the late President, M. Paul Labbé, who held office for so short a period after the decease of M. René Momméja, has agreed in memory of her late husband, to continue his prize of 300 francs, in cash, to the seedling raiser who obtains the greatest number of certificates at the Floral Committee meetings for novelties raised by him. As before mentioned the Annual Congress and Show will be held at Rennes on the 5th to the 7th November next. A provisional programme has been drawn up but fuller particulars will be supplied later. Subscriptions are now due. English members may remit to Mr. Harman Payne, 195, Wellmeadow Road, S.E. 6. The amount is eight francs at current rate of exchange. It is hoped that the pre-war concession by the Railway Companies will be made by which members can travel to the place of meeting by a reduction of 50 per cent on the usual fares.

National Dahlia Society.—We are glad to learn from the Secretary that this old floricultural society is in a more healthy condition than it has been for some years past and all lovers of the Dahlia are asked to make the Society still stronger by joining as members. The show is fixed for Wednesday, September 10, and will be held in the Royal Horticultural Hall, Westminster. The schedule contains an increased number of classes over those of last year, and in some of them the value of the prizes has been increased. There are classes for nearly all the types of the Dahlia, although the Cactus-flowered type is still the most popular for exhibition. The old show and fancy Dahlias are allotted two classes in the open section, two classes in the larger division for amateurs, and one class for amateurs who have never won a first prize at the National Dahlia Society's shows. As showing the decline of these two types of Dahlias as exhibition flowers, both the Show and the Fancy types may be shown in each of these classes. There are numerous new types of Dahlias which the older generation of florists' did not possess, such as the Collerette, Star, Paeony-flowered and

Mignon. At the end of the schedule typical specimens of some of the types are illustrated, offering a good guide to intending exhibitors; it is to be regretted that illustrations of all the types are not included for blank spaces occupying nearly the whole of certain pages have spoiled what would otherwise have been a very useful guide of the modern Dahlia.

Trees and Flowers in the Garden of St. Paul's Cathedral.—A correspondent in a recent issue of *The Times* gives a list of plants cultivated in the garden on the east side of St. Paul's Cathedral. It is a remarkable list, and we doubt whether there is such a varied collection of plants to be found in any other part of the great metropolis and certainly none so near the centre of London. Quite recently this garden was pretty with such spring flowers as Tulips, Wallflowers, Hyacinths and Daffodils. There are also large clumps of Saxifrages, which are now nearly over, the stocks of which were planted some forty years ago. The variety of trees and shrubs included in this interesting garden is very remarkable. There are fine specimens of the Plane, in which thousands of birds make their home at night; Cherries, Apples, Pears, Currants, Gooseberries, Grape vines and Figs are all to be found in this small garden; these fruit trees have probably originated from seeds deposited by passers-by. The Fig trees fruit, but the fruits seldom come to maturity. Mulberries, however, flower and set their fruits well and so do the Apples, although, being seedlings the Apples are of no value. Other trees include the Maple, Horse Chestnut, red and white Hawthorn, Ash, Walnut, Dogwood, Hazel, Oak, Elder, Weeping Elm, Forsythia, Maidenhair tree, Laburnum, Mountain Ash, Lime, Tulip Tree, species of Prunus, Pyracantha, Service Tree, Catalpa, Birch, Ailanthus and Spindle Tree. Of lesser shrubs and trees there are Aralias, Guelder Rose, Lilacs, Privets, Hibiscus, Cotoneasters, Bladder Senna, Roses, Bamboos, Yuccas, Rhododendrons, Weigelias, Polygonums and Ivy. Not many horticulturists frequent the gardens, which are mainly used as a place of rest during the luncheon hour by employees of the various warehouses in the district. The gardens have been in the care of a gardener who has tended them for nearly half a century. Some very bright flowers are cultivated in these gardens and usually one or more bed is furnished in summer with a design in carpet-bedding.

Forest Fire dangers.—The time will soon be with us, writes our north of Scotland correspondent, when pic-nic and holiday parties will be finding their way to the woods for enjoyment and recreation. Those good folk should understand the great damage done to Scottish woodlands by fire through the indiscriminate and reckless action of pic-nic parties lighting fires in the midst of surroundings that can only be described as akin to tinder. The careless use of matches and even a discarded cigarette may be sufficient to cause a conflagration and with results the originators never dreamed of. All who are permitted to enjoy the pleasure of the beautiful Scottish woods should particularly bear in mind the great danger and damage they are likely to cause by stupidly lighting fires in dangerous areas. Such people should realise that plantations and woods are in a variety of ways essential to rural industry, and should therefore be carefully preserved. It is little to be wondered that many broadminded landowners are curtailing the freedom they have hitherto granted in their woods. In not a few cases the privilege has been grossly abused, with the result that many intelligent and conscientious people are debarred, through the recklessness and stupidity of a few, from enjoying one of the delightful attributes of a holiday—a stroll through the woods.

Mr. H. Prince.—Born in the gardens at Dartrey Castle, co. Monaghan, where his father was gardener to the Earl of Dartrey for twenty-five years, it was only natural that Mr. H. Prince should take up gardening as a career. In July, 1904, he commenced service under his father, but about a year later his father died and Mr. H. Prince went to the Glasnevin Botanic Gardens, where, under Sir F. W. Moore, he worked in various departments and took a full course of lectures in botany, etc. His stay for two years at Glasnevin proved invaluable to him in later years and he invariably speaks in the highest terms of affection and regard of the keen interest Sir F. W. Moore took in young men who were enthusiastic gardeners. In 1907 Mr. Prince moved to Bear Wood Gardens, Wokingham, Berkshire, and while there he took advantage of the lectures given at Reading University College by the late Mr. C. Foster, and Mr. Drew. He also attended the meetings of the Reading Gardeners' Association, and while in the gardens at Bear Wood he had ample opportunity of making himself acquainted with flower gardening, as well as other departments of his profession, inasmuch as gardening in all its branches was a great feature at Bear Wood. From Wokingham, Mr. Prince went to Hillingdon Court in 1910 and in a very short time he was promoted to foreman under Mr. A. Allan. Two years later he entered Messrs. James Veitch and Sons' nursery at Chelsea and worked for some time under Mr. Archer in the decorating department. From Chelsea he went to Downside Gardens, Leatherhead, where he acted as foreman under Mr. W. Mease, who, as our readers will remember, made a special feature of Chrysanthemums and Roses, and whose employer, the late Mr. Alfred Tate, was an enthusiastic rosarian and horticulturist. After the death of Mr. Tate, Mr. Prince went from Downside to Bishopswood, but shortly afterwards passed on to Polesden Lacey, near Dorking, Surrey, where he became foreman in 1915, and was promoted to the position of gardener to the Hon. Mrs. R. Greville, in the following year. The gardens at Polesden Lacey are thoroughly well kept and flower-gardening is a fine feature of the grounds during the summer, annual flowers especially being used very extensively and effectively. Mr. Prince is equally successful in the cultivation of fruits and vegetables as in flowers, and in 1920 he won the Sutton Silver-gilt Challenge Cup and numerous other prizes for vegetables, and in the previous year obtained the prize for Apples in an open competition among growers in Surrey, Sussex and Hampshire.

MR. H. PRINCE.

South Lodge Gardens, Horsham.—Dame Alice Godman's beautiful and interesting gardens at South Lodge, Lower Beeding, Horsham, will be open to the public on Saturday, May 24; Thursday, May 29, and Saturday, May 31, from 12 noon to 7 p.m. on the payment of one shilling. These gardens are within five minutes walk of Leonardslee Gardens which are open to the public on the same days and hours.

La Taille Lorette.—Those of our readers who are interested in the Lorette method of pruning fruit trees will find a good deal about it in *Jardinage* for the current month. There are several articles by different writers with a number of clear photographic illustrations which are particularly useful in elucidating the text.

South African Succulent Plants at Wembley.—The very fine exhibits of Succulents to be seen at the British Empire Exhibition, Wembley, is the outcome of a suggestion made by the Division of Botany, Pretoria, that as representative a collection of Succulent plants as possible should be included in the National Exhibit of the Union of South Africa. The Railway Administration very willingly offered to assist, and instructed Mr. Frith, the Railway Horticulturist, to consult with the Division of Botany, and it was then decided that the exhibit was to be a joint exhibit from the South African Railways and the Division of Botany. As it was essential that someone should accompany the exhibit to England, and as Mr. Frith was actively engaged in assisting with the collection, it was recommended by the Chief Division of Botany that he should take charge of the entire collection while in transit to England, and this was eventually agreed to. A start was then made in earnest. The Division of Botany decided to collect all the larger Succulents and sent out Mr. Wickens (Officer-in-charge of the Union Buildings Garden) and Mr. D. J. Fouche (Staff Division of Botany) on collecting trips. All this material was assembled in Pretoria and established in tins on arrival. At the same time Mr. Frith was busy collecting the smaller Succulents which were assembled at the Railway Horticulturist's Nursery in Johannesburg. The very careful packing of the large Aloes, etc., for shipment by Mr. Fouche, and of the smaller plants by Mr. Frith, was undoubtedly responsible for the excellent condition in which the specimens arrived in England. The Division of Botany was able to make a small allocation from its exhibition funds towards defraying part of the expense of erecting a shelter for this collection. The Director of Kew was asked to undertake the erection of the rockery, but could only promise to assist by superintending the work and advising Mr. Frith. At the close of the Exhibition, the whole collection will be donated to the Botanic Gardens at Cambridge, Edinburgh, and Kew. The Division of Botany and the South African Railways are to be complimented on the collection they have sent to the Exhibition, and the Chief of the Division of Botany for arranging for and supervising the joint collection.

Opening of Hatfield Forest to the Public.—Hatfield Forest, a beauty spot about three miles from Bishop's Stortford, which has been given to the nation by the late Mr. Edward North Buxton and members of his family, was formally opened to the public use on Saturday by Lord Ullswater, Vice-President of the National Trust, in whom the deeds are vested. Lord Ullswater stated that the Trust was particularly interested in the preservation of the flora and fauna of the country, and that it had secured over one hundred spots of beauty and historical interest. The management was carried out through local committees set up in the different counties. Lord Lambourne stated that he had hunted in Hatfield Forest since 1856, and he expressed the thanks of the county to the donors of the gift. The large company present included Lady Warwick, Mr. J. Bailey, chairman of the Executive Committeee of the National Trust; Mr. C. G. Musgrave, Mr. S. W. Robinson, and Mr. L. W. Chubb, Secretary of the Commons and Footpaths Preservation Society.

Appointments for the Ensuing Week.—Tuesday, May 27.—Royal Horticultural Society's spring exhibition at Chelsea (3 days); Bath and West and Southern Counties Society's show at Taunton (5 days); Newcastle and District Horticultural Society's lecture. Wednesday, May 28. — International Professional Horticultural Federation Conference (2 days); Entertainment of International Delegates by the Royal Horticultural Society, at the Hotel Cecil (7.45 p.m.); Kew Guild annual meeting and dinner at the Imperial Hotel, Russell Square, W.C. Thursday, May 29.—Entertainment of foreign horticulturists to luncheon (Connaught Rooms) and dinner (Trocadero Restaurant). Friday, May 30.—Visit of International Conference Delegates to East Malling Experimental Station; Dinner given by the First Commissioner of Works to the International Conference Delegates, at Lancaster House, St. James's. Saturday, May 31.—Wakefield and Northern Tulip Society's Show (4 days).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Too Many Gardeners.* It has for a long time been evident that the country is becoming overstocked with gardeners. Of that fact the continually increasing number of advertisements for places bears painful evidence; and our private experience more than confirms it. Men of considerable skill, excellent character, and in the full possession of their physical powers, remain for years unemployed, unless as temporary labourers, gradually consuming their small savings, and witnessing the continual diminution of their resources at the very time that their unavoidable expenses are increasing. To many such, a wife and family, which under better circumstances would be blessings as well as a source of wealth, become a burthen which too often weighs their possessor to the ground. There can be no possible doubt that the market contains a much greater supply of gardeners than there is a home demand for. The difficulties of many gardeners is not a little increased by the continually advancing intelligence of younger men, whose education has been conducted upon entirely different principles from those which formerly regulated the instruction of their class. Mere routine has lost its value. It has ceased to be thought enough that a man has passed a certain number of years in the practice of common gardening; it is expected that the mind should be cultivated as well as the soil. This change of circumstances operates most prejudicially upon many excellent men, who have possessed in their youth none of the advantages of the rising generation. Martyrs, not merely in mind but in body as well, to the execrable bothy system, they are now suffering an unmerited punishment for the delinquencies—and they deserve no better name—of those who undertook to prepare them for meeting the difficulties of a career in which nothing can now be effected without knowledge and a well-trained mind. What such men can do it is hard to tell. For ourselves we believe that emigration presents the best means of leaving poverty and sorrow behind them, and of finding a land of promise in another hemisphere. *Gard. Chron., May* 26, 1849.

Publications Received.—*Fruit Culture and Utility.* By Donald McDonald. Robert Hayes, Ltd., Rosebery House, Bream's Buildings, E.C.4. Price 6s. net.

TREES AND SHRUBS.

RHODODENDRON DILATATUM.

In the *Monograph of Azaleas*, by Messrs. E. H. Wilson and A. Rehder, published in 1921, the correct name of this beautiful April-flowering Azalea is given as R. reticulatum var. pentandrum. R. reticulatum, D. Don. is an older name for the plant widely cultivated in gardens as R. rhombicum, Miquel; both are natives of Japan. As garden plants—at least as flowering in the Rhododendron collection [at Kew—the two are quite distinct. R. rhombicum is a sparsely-branched, loose-habited bush, with flowers 1½ inch to 2 inches across and ten stamens, while R. dilatatum is a sturdy, branching shrub of pleasing outline, with rich purple flowers 2 inches to 2½ inches across, containing five stamens.

In *Rhododendrons*, by J. G. Millais, we read that R. dilatatum (spelt, by the way, R. "dilitatum,") "is closely allied to R. rhombicum, but hardier and less beautiful than that species as a garden plant." Again, "it appears to be a hardy species in our islands, but has few claims to beauty." If these two comments describe the plant Mr. Millais cultivates as R. dilatatum it is a different plant to that which annually, in April, is one of the most beautiful shrubs flowering on the slopes round King William's Temple at Kew. A second period of very distinct and conspicuous beauty occurs in autumn when the foliage assumes gorgeous crimson and red tints ere the leaves fall.

R. rhombicum appears to have been first introduced by Messrs. Knight of Chelsea, about 1832-33. The first record regarding R. dilatatum is of specimens cultivated at Kew in 1880.

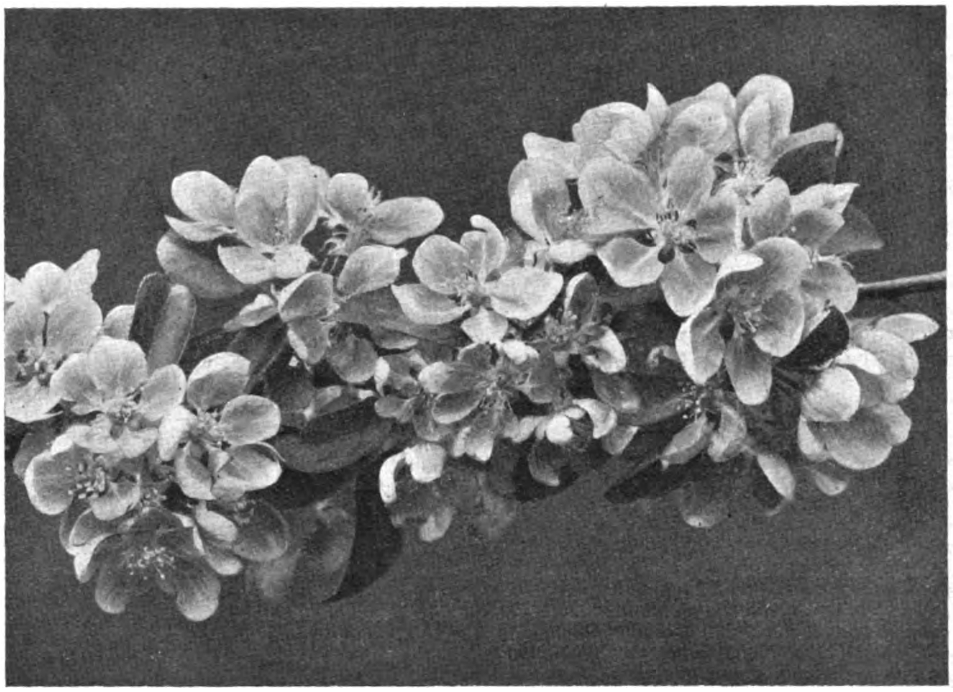

FIG. 124.—PYRUS (MALUS) WISLEY CRAB.
R.H.S. Award of Merit, May 13 (see p. 295).

FLOWERING CRABS AT KEW.

Among ornamental flowering trees the Crabs or members of the Malus group of Pyrus are indispensable in the garden and pleasure grounds. They provide a wealth of blossom rivalled, perhaps, only by the Cherries. In most seasons the trees attain their greatest beauty towards the end of April, but this year they are a week or ten days later. This is an advantage, the flowers being less liable to damage by frosts and cold winds.

The wealth of blossoms on Apple and Pear trees in the garden and orchard give some idea of the effect it is possible to obtain in the pleasure grounds and park by the extensive planting of the species hybrids and varieties of Malus.

In a short note it is only possible to refer briefly to a few of the most showy. For a small garden readers are advised to plant the first six in the order named, beginning with P. Scheideckeri, said to be of hybrid origin (floribunda × spectabilis) introduced to cultivation by Spath in 1888. Words cannot adequately describe a tree of this Crab in flower to-day at Kew—a mass of pale rose, semi-double blossoms. It is stiffer in habit than the Japanese Crab, P. floribunda, a delightful small tree with elegant, arching branches, and blooms that are red in the bud opening to pale pink. The variety atrosanguinea has rich rosy tinted blossoms. This might be included by some cultivators in the best half-dozen in preference to the type. P. spectabilis flore pleno is a beautiful round-headed tree with a wealth of pink blossoms, though here again it would be excluded from the select six by the variety Kaido, with its rich rosy-red flowers. P. purpurea (floribunda × Niedzwetzkyana) has very effective, lively, rosy-purple flowers and is particularly fine for grouping, or as a lawn specimen.

P. Sargentii is a Japanese Crab of shrubby habit. The Kew plant is 6 feet high and wide, a perfect bush covered with white flowers with over-lapping petals, larger and with more substance than in many Crabs. The Prairie Crab, P. ioensis, with its fragrant, pink-tinted blossoms, is a favourite with Kew visitors, but the last place in the list of six must be reserved for the Bechtel Crab, P. ioensis var. flore pleno, only now just opening its dainty pink blossoms, 2-2½ inches across; the largest flowered and most fragrant of the flowering Crabs.

P. baccata, P. prunifolia, P. crataegifolia, P. Ringo, P. Toringo, and P. Zumii are all very free-flowering, while the Russian Crab, P. Niedzwetzkyana, is worthy of attention because of the novel and distinct deep red-purple colour of the blooms. Very showy also are the hybrid Crabs—Eleyi, aldenhamensis, Arnoldiana, John Downie, Dartmouth, and Lady Northcliffe. *A. O.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Phalaenopsis. — Such Phalaenopsis as P. amabilis, P. Stuartiana, P. Schilleriana, and others of this type have been blooming for some time past, and as the flower scapes are removed they will commence to make new leaves and roots. These Orchids should be afforded fresh rooting materials each year, and those growing in Teak-wood baskets that have become decayed should be provided with new receptacles. Before proceeding to remove the plants immerse the baskets in tepid water for a short time; this will cause the roots to be more easily detached from the wood. The wire that holds the basket together should be cut, the bars of wood removed singly, and the roots detached carefully with the blade of a sharp knife. If the baskets are in a sound condition remove all the old materials from between the roots, and afterwards wash the inside of the basket and also the roots by syringing them with tepid water. Phalaenopsis may be grown equally well in Orchid pans, but whichever kind of receptacle is used it should be well drained with clean crocks. As a compost use Sphagnum moss and Osmunda fibre in equal proportions, and finish with a layer of clean heads of Sphagnum moss over the surface. The moss should be sprayed lightly twice daily in order to cause it to become green and healthy, continuing this treatment until the plants have rooted freely in the compost, when they should be given liberal waterings all through the summer, allowing the materials to become dry between each application. The plants should be shaded from the sun's rays during the spring and summer. They delight in a high temperature from sun-heat if moisture and fresh air are afforded. They may be either suspended from the roof rafters or placed on the stage on inverted pots standing in saucers of water. On the approach of winter moisture should be afforded the roots in reduced quantities.

Dendrobium Phalaenopsis. — Plants of this beautiful species have commenced to grow, and will quickly develop numbers of young roots from the base of the new shoots. Any specimens that are in need of more rooting-space should be given attention at this period. It is advisable to grow the plants in as small receptacles as possible, as although during their season of growth they need plenty of water at the roots, they thrive best when the material dries quickly, therefore only a small quantity of compost should be employed. Osmunda fibre is the most suitable rooting-material, which should be chopped into small portions. In potting the plants pack the material quite firmly around their base. Grow the plants in the warmest house near to the roof-glass, and afford only sufficient shading to prevent scorching of the leaves. D. bigibbum and D. Goldiei should be given similar cultural treatment.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Gunneras.—These handsome, waterside, foliage plants frequently suffer injury from late frosts and should not have the protecting material entirely removed until danger from severe cold is over. Care should be taken, however, that the protective material is not lying directly on the unfolding leaves, and in exposed positions it may be necessary to protect the plant with light canvas screens, held in position by supports which keep them free from the plants.

Staking.—Herbaceous plants of every description will now need constant attention in the matter of staking, and although the operation itself is a simple one, the carrying out of it to meet the needs of the various plants calls for much knowledge and judgment. It is wise to begin staking in good time, as plants left without support until they begin to fall under their own weight, never do so well as those which are staked early. Moreover, early staking enables the operator to reach that ideal of a well-staked border, viz., everything well supported yet few stakes visible, as stakes properly placed become clothed with the foliage of the plants they support. For clumps of plants of moderate height and weight a few twiggy Hazel branches inserted in the clump will afford sufficient support and produce a much more natural effect with less work than single stakes and ties. Fuller-growing subjects will need strong stakes for each growth or group of growths, and these should be inserted to a good depth. For the tallest plants strong square stakes should be used, as these exercise more resistance against the pull of the plant during the autumn winds.

The Rose Garden.—No sooner have we put the Rose garden in order than the challenge is thrown to us by a host of pests. Amongst the first to appear is the grub of the winter moth which immediately sets out to ruin the leaves and devour the buds of the earliest growths. Hand-picking, although tedious, is probably the most efficacious way of dealing with them, but in large gardens where this is not practicable, the mixture recommended by the National Rose Society may be used, viz., arsenate of soda 1 oz., acetate of lead 2¾ oz., water 10 gallons. First dissolve the substances in a small quantity of water, then add the full quantity and apply as a fine spray.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Early Muscat Vinery.—Maintain a growing atmosphere in this vinery especially where the berries are swelling freely. Examine the crop and if the number of bunches is excessive it will be wise to severely reduce the crop, otherwise the vines will be exhausted, with detrimental results in the ensuing years. A light mulch of old stable manure spread over the inside border will be very beneficial to the vines and the border should be kept well moistened with liquid manure, and this form of food should be alternated with a concentrated vine manure until the Grapes begin to colour when clear water only should be used.

Mid-season Grapes.—The principal work in this house will be the thinning of the bunches and stopping and tying the young growths. When selecting the bunches for the crop chose those that are shapely and of medium size in preference to those with long, ragged shoulders. After the thinning of the berries the borders should be well supplied with moisture.

Late Vines.—Hasten the development of late vines by closing the house early to make the fullest use of sun heat. If no fire heat is employed admit air early in the morning to allow the condensed moisture to escape. Late Muscats, Mrs. Pince and other shy setting varieties coming into flower require artificial pollination, using pollen from a vine of Black Hamburg. Do not allow the atmosphere to become excessively dry during the flowering period; damp the floors and open spaces at least once each day to create a buoyant atmosphere.

Late Houses.—The trees in late houses should receive the necessary attention with regards to tying, training and thinning of the growths that are not required for furnishing the tree next year. Remove some of the shoots from time to time, retaining those of medium strength in preference to unduly strong growths. Train the shoots four inches to five inches apart. It is a great mistake to overcrowd the young growths, at the same time sufficient should be retained to balance the growth of the tree. Where more than one cold house is available, a good succession of Peaches and Nectarines may be obtained without the aid of fire-heat. In these gardens one of the houses is closed at 4 p.m. while others are allowed to remain open on hot, sunny days, until 7 p.m., to obtain a longer succession of fruits. Peaches and Nectarines planted out in well-drained borders or in a naturally dry subsoil cannot be given too much water during their growing season. Therefore it will be necessary to apply water to the roots frequently during hot, dry weather.

PLANTS UNDER GLASS.

By F. J. Clark, Gardener to Lt.-Col. Sir George Holford, Westonbirt, Tetbury, Gloucestershire.

Greenhouse Rhododendrons and Azalea indica.—As these plants pass out of flower they should receive immediate attention in the removal of spent flower heads before they will have had time to form seed pods. This operation should be performed carefully owing to the risk of removing or of damaging the new growth-buds which spring from the bases of the flower stalks, therefore the latter should not be taken off too low down. The plants should be given every encouragement towards the production of new growths. Although the best time for the general potting of these plants is the early autumn, any which need top-dressing may, with advantage, receive that attention now. Examine the drainage carefully with as little disturbance of the plant as possible; with a pointed stick take away a part of the exhausted soil and substitute fresh soil, consisting of three parts of peat and one part of fibrous loam (containing no lime), with a free addition of sharp sand and broken charcoal. The soil should be rammed very firmly, first using the wedged end of the potting stick, and room enough should be left below the rims of the pots to allow for adequate applications of water. After this top-dressing the plants should be grown in a shaded greenhouse; they should be syringed frequently both to encourage growth and to prevent the lodgement of thrips and red spider, to the attacks of which these plants are particularly subject, when grown under glass. Later in the summer the plant should be placed outside, plunging the pots in a bed of ashes if possible, in a partially shaded position, where they should be allowed to remain until well into the autumn in order that the new growths may become thoroughly ripened.

Humea elegans.—This is one of the most attractive and useful of plants where large groups have to be set up; it is also a useful subject to employ in the furnishing of lofty rooms. Plants raised from seed last year should, if not already done, be placed in their flowering pots forthwith, using a fairly rich and open compost and well-drained pots of about nine inches diameter. They should be potted firmly. This plant should be grown under cool conditions; exercise great care always in watering the roots. To provide plants for flowering next year seeds should be sown at about midsummer. Sow thinly in well drained pans, in a mixture of light, fresh loam, leaf-mould and sand. When the seedlings are large enough to handle they should be potted singly into small pots and shifted on into larger receptacles as required, being careful never to overpot them. They should be grown on steadily in a light position under glass all through the winter.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Cherries.—Both Morello and Sweet Cherry trees are carrying abundant blossom, and, provided the fruits set freely, there should be good crops of these fruits. The weather at the time of writing is not ideal for pollination, and it would be advisable on a fine day to assist the setting of the fruits by pollinating the blossoms, lightly touching them with a camel's hair brush or rabbit's tail fastened on a stick. If the weather turns warm and sunny, a close watch should be kept for black aphis, as this pest soon spreads. As soon as the trees have set their blossoms, syringe them with Quassia extract diluted in rain water, remembering that two or three medium applications are better than one strong one. See that the borders do not lack moisture, a point often overlooked in the growing of wall fruits. If required, fork the surface lightly, and give the border a copious soaking, especially in the parts close to the wall. The roots of trees being dry is perhaps more the cause of fruit dropping at this stage than anything else.

Vines on Walls.—Where Vines are grown they should be attended to in the matter of thinning the shoots, and fastening securely those that are left as growth progresses. Shoots bearing bunches should be stopped at four or five growths beyond the bunch, or less if the wall is furnished with the other growths. Water the roots liberally if they require moisture and apply a mulch of well-decayed manure.

Peaches and Nectarines.—These fruit trees are late in developing this season owing to cold nights and lack of sunshine. The thinning of the shoots will need careful attention; do not remove too many at one time otherwise the trees will receive a check. If plenty of growth is retained and the disbudding done gradually, it will encourage healthy root action, which will be all to the good if the weather continues dull.

THE KITCHEN GARDEN.

By Walter Y. Staward, Gardener to Mrs. John Feeney, The Moat, Berkswell, Warwickshire.

Perpetual Spinach.—Seeds of Perpetual Spinach may be sown now for a continuous supply of leaves during the summer. Sow in rows made fifteen inches apart and thin the plants to one foot asunder in the rows. The thinnings may be transplanted in the usual way with a dibber.

Celery.—For later planting seedling Celery should now be pricked off into light sandy soil in a frame. Keep the frames closed for a few days and damp the seedlings overhead in the early afternoons.

Peas.—Another sowing of Peas of the late varieties Edwin Beckett and The Gladstone should be made now. These are two good varieties and may be relied on for a sure crop. The earlier varieties should be given copious supplies of water at the roots if they get dry and if rough manure is available apply a mulch of this material between the rows to keep the ground moist.

Seed Beds.—Where the young crops are coming through the soil, the ground should be hoed freely to kill young weeds. When the seedlings are ready to handle, thin them to the usual distance apart.

Spring Cabbage.—The plants have now started into growth and the soil about them should be dusted with nitrate of soda. Draw a moderate amount of soil up about the plants to prevent them from being loosened in the ground by the wind when they get larger.

Asparagus.—Young Asparagus plants raised from seeds sown last year should be given a liberal dressing of agricultural salt which will benefit the young plants and ward off slugs.

ALPINE GARDEN.

SAXIFRAGA BURSERIANA VARIETIES.

The references to Saxifraga burseriana Gloria on pp. 77, and 91, and the illustration of S. burseriana, Fig. 31, p. 77, awakened my interest in these two varieties and the enclosed photograph is the result. I grew the specimen illustrated in the *Gard. Chron.* of February 9th, 1924, and I also exhibited the plant at the Royal Horticultural Hall under the name of Saxifraga burseriana grandiflora. This plant differed from the true S. burseriana grandiflora, as its flower stems were pale rose, shading to green, and the flowers were larger and finer than in the type; it was also very floriferous year after year, in fact we have the same specimen now and in the same pan, and three years ago it was equally as good as in earlier years. I am sorry to say that it is now just beginning to decay in the centre, and this is doubtless due to leaving it out of doors entirely for two years. The specimen is fifteen years old. In 1914, experts told me the plant would never be the same again, and yet I have seen it carrying more flowers and become a finer specimen than when we first exhibited it.

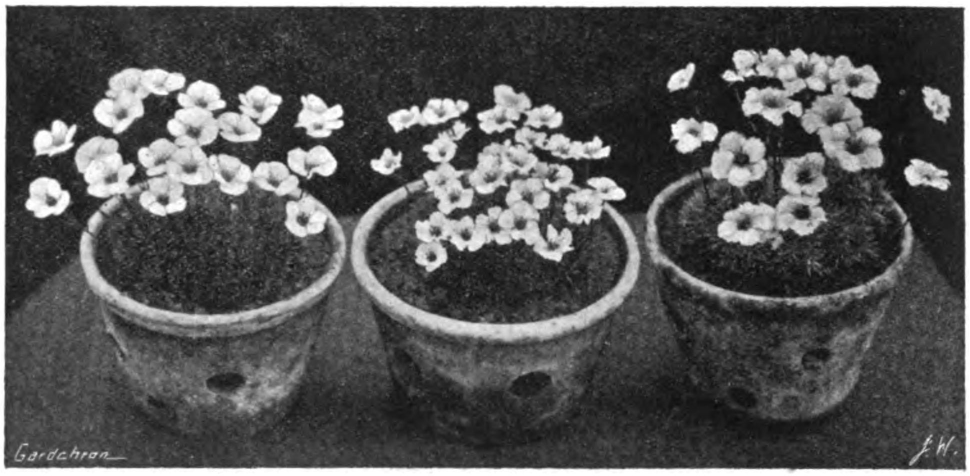

FIG. 125.—SAXIFRAGA BURSERIANA VARIETIES.

Left, S. b. rotundiflora; centre, seedling from S. b. Gloria; right, a large-flowered seedling from S. b. tridentina.

I cannot understand Mr. S. Arnott when he states that Saxifraga burseriana Gloria is taller than S. b tridentina; my experience is entirely the opposite, and is that S. b, Gloria throws a rich red bud with a very red stem, and when the stem is growing upwards the buds are in a pendulous or drooping position. I must agree with Mr. J. W. Besant that it is shy in flowering, whereas Saxifraga burseriana tridentina is very free-flowering at Coombe House and a great deal taller than S. b. Gloria. This form has very red stems and coarse foliage.

I enclose a photograph (Fig. 125) showing two seedlings from S. b. Gloria (the two on the left) and one from S. b. tridentina. The left hand plant has foliage resembling that of S. b. tridentina, but the flower stems are four inches high and the flowers rotund and much whiter than in S. burseriana type. We call this seedling S. b. rotundiflora. It has red stems similar to those of S. b. tridentina. The central plant has very small, pale green foliage, with flower stems three inches high and rose-coloured in the axils of the bracts; the flowers are frilled and have the appearance of being dull or greeny-white. These two plants are seedlings from S. b. Gloria, which is two inches high. The third seedling, on the right, is four inches high, a true S. b. tridentina in every detail except that the flowers are one-and-a-quarter inches across. From S. b. Gloria we have raised a great number of forms, some with light grey foliage and some with very dark grey, bordering to velvety-green. S. b. tridentina has given us Saxifraga Boydii also with flowers squatting down close upon the foliage.

I would advise those raising seedling Saxifrages not to be in too great a hurry to declare that their pets are free-flowering, and I venture to congratulate Mr. J. W. Besant of Glasnevin upon the excellent specimen of Saxifraga Salomoni illustrated on p. 133; this is a very shy flowering kind and does Glasnevin great credit. By the way, I wonder how many readers produce quantities of flowers upon S. sancta and S. bryoides? *Mark Mills.*

SAXIFRAGA ASPERA.

Saxifraga aspera, from the European Alps, belongs to the section dactyloides, but differs considerably in its appearance from the majority of the plants in that section, and has for its nearest ally the North American S. bronchialis. Its merits do not lie in a striking inflorescence, but rather in the aspect of its foliage, which is bristly as the specific name would imply, and is arranged in cord-like branches, more marked in the variety or sub-species bryoides, which is more compact and even preferable to S. aspera itself.

There is about these two plants a curious touch of grey or metallic colouring and a denseness of growth which is attractive, while S. bryoides in particular conveys the impression of its being composed of greenish-grey cord roughened by wear, but forming a close, not unattractive mass of mat-like formation.

The flowers in S. aspera, which are developed on stems five inches or six inches high, are butter-yellow, spotted with orange, those of S. a bryoides being brighter and prettily marked with orange dots. Both these Saxifrages did well on a level terrace of my rock garden, where they throve, but did not increase rapidly, in loam, sand, and grit in exposure to sun. They did not flower so freely as I should have desired, and I attributed this to the position being a little too dry for them. I am given to understand that S. a. bryoides is found on the higher and drier altitudes, and it evidently showed signs of objecting less to drought than the other, yet appreciated good soakings with the watering can and sprayings in continued dry weather. Of the two forms I prefer bryoides to the type. *S. Arnott.*

ORCHID NOTES AND GLEANINGS.

BRAZILIAN MILTONIAS.

IN the fine group shown by Messrs. Stuart Low and Co. at the Royal Horticultural Society's meeting on April 29, opportunity was given for comparing the tall section of Brazilian Miltonias. The species of this section included M. candida, with upright spike of flowers with chestnut-brown sepals and petals, the latter blotched with red-brown and a white tubular lip with violet markings in the centre; M. Clowesii, with yellow sepals and petals barred with chestnut-brown; M. cuneata, similarly coloured, but with broadly expanded white front to the lip; and M. flavescens, which was first flowered in the gardens of Mr. Richard Harrison, Aigburth, Liverpool, from plants sent from Rio de Janeiro by his brother in 1832. This last species has since been imported occasionally, but is now rare. The tall spikes have flowers of stellate form with nearly equal sepals and petals of straw-yellow colour and white lip with purple markings at the base. The species are similar in habit and grow best with the cool or intermediate-house Oncidiums. Messrs. Low have recently shown M. Binotii, a natural hybrid between M. candida and M. Regnellii, and M. Lamarckeana, a natural hybrid between M. candida and M. Clowesii. Although imported natural hybrids of most of the species are known, it does not appear that these species have been productive of hybrids in gardens. *J. O.'B.*

ODONTOGLOSSUM HORUS.

MR. W. SORRELL, gardener to R. Gerrish, Esq., Milford Manor, Salisbury, sends the first flower of a wonderful new Odontoglossum raised between O. eximium and O. Georgius Rex, and named O. Horus. The flower, which is of broad proportions and measures four inches across, is of deep claret-crimson colour, the sepals having two or three white spots and the petals a thin white line, while both sepals and petals have a narrow white margin. The lip has a white band at the margin with some small crimson spotting; the crest is yellow. As in many hybrids O. in which O. crispum predominates, the reverse side of the flower is coloured like the face, but the midribs are white.

INDOOR PLANTS.

ARUM LILY.

ALTHOUGH the Arum Lily (Richardia africana) is one of the oldest greenhouse subjects, it is still cultivated extensively, its outstanding qualities for ceremonial occasions and the making of floral designs assuring its continued popularity. With few exceptions, on visiting a garden the Arum Lily is to be seen, but I fear in many cases not at its best.

The chief cause of failure is due to wrong treatment of the plants during the summer. Many growers place them, after removing them from their flowering quarters, in a corner of the frame-yard, where they are forgotten until the autumn, when they receive a top-dressing or are shaken out and re-potted. To obtain high quality inflorescences, a much more liberal treatment is necessary. As the plants pass out of flower and are sufficiently hardened, they may be stood out-of-doors in a sheltered part of the frame-yard until acclimatised, when they should be split up carefully to single crowns and planted out on a border facing east or west in soil that has previously been thoroughly manured and trenched.

The plants should be put out in their respective sizes, in rows made two feet asunder. Little attention is needed until growth recommences, when waterings should be given if necessary.

By the middle of September the plants should be lifted with great care, and placed singly into eight-inch pots or three in a ten-inch pot. The compost for this potting should consist of three parts good fibrous loam, one part manure, sufficiently decayed to pass through a half-inch sieve, and sufficient coarse sand or sifted lime rubble to render the soil porous, with a sprinkling of soot, charcoal, and crushed bones. After potting them place the plants in a naturally shaded position outside, and give them a thorough watering. Subsequent waterings should be given with care and the plants may be syringed overhead several times on bright days. Under this treatment the plants will make good growth and may be removed to a suitable greenhouse later. If proper attention is given to watering and feeding, the grower will be amply rewarded with an abundance of large, well-formed spathes. *T. Baines.*

GREENHOUSE RHODODENDRONS.

IT is surprising that these beautiful plants are not more commonly cultivated. Some gardens include one or two plants, but a full collection is rare, and healthy specimens are seldom seen. No other greenhouse plants, not even Ericas and Azaleas, are so exquisitely beautiful as the Rhododendrons, and when some of the best are in bloom they have an attraction far beyond that which any common indoor-plant can command.

Unlike many of the open-air varieties, the greenhouse Rhododendrons bloom profusely when quite young and small. I have some plants not more than eighteen inches high, bearing many fine trusses and splendid blooms, and large specimen plants are lovely when compactly grown and profusely flowered.

There are two methods of cultivating them successfully—one is to plant them out in beds, the other to grow them in pots or boxes. In all cases the soil in which they are grown should contain a liberal quantity of peat and sand. Good drainage and firm potting are necessary to success. When the plants are making their growth the temperature of an ordinary greenhouse suits them.

Water should be applied to these plants unsparingly, both at the roots and by means of the syringe. When growth is completed and the flower-buds formed, a lower temperature with less moisture is best for them.

The plants may be placed out-of-doors in August and September to mature their growth, and shading should not be resorted to at any time. Well developed specimens force readily in the spring, but they should not be forced too quickly. They will bloom in perfection about Easter. Those who have no knowledge of their cultivation should treat them in the same manner as greenhouse Azaleas. *James A. Paice.*

NEW HYBRID ORCHIDS.

(*Continued from April 5, p. 192.*)

Name.	Parentage.	Exhibitor.
Brasso-Cattleya The Globe	B.-C. Cliftonii × C. Trianae	Armstrong & Brown.
Brasso-Laelio-Cattleya Edward Rochrs	B.-C. Mrs. J. Leemann × L.-C. Ettrick	J. P. Mossman.
Brasso-Laelio-Cattleya Miss Eileen Low	L.-C. Chantinii × B.-C. Digbyano-Trianae	Clement Moore.
Cymbidium edinense	Iris × Coningsbyanum	Edinburgh Botanic Gardens.
Cymbidium Gatton Lily	Gottianum × Queen of Gatton	Sir J. Colman, Bt.
Cymbidium Iris	Lowianum × giganteum	Edinburgh Botanic Gardens.
Cymbidium Joy Sander	Pauwelsii × Ceres	Sanders.
Cymbidium Louis Sander	Ceres × Alexanderi roseum	Sanders.
Cypripedium Aireworth	Alcineda × Hera	Mansell & Hatcher.
Cypripedium Alberic	nitens × Lady Dillon	Charlesworth.
Cypripedium Arcadia	Erato × clinkaberryanum	Charlesworth.
Cypripedium Biafra	Calypso × Draco	Charlesworth.
Cypripedium Casella	Erato × aureum	Charlesworth.
Cypripedium Condor	vill-Exul × aureum	Charlesworth.
Cypripedium Earl Zealandia	Earl Tankerville × Lord Wolmer	R. Paterson, Esq.
Cypripedium Eureka	Lady Dillon × Hera	Charlesworth.
Cypripedium Joyce	hirsutissimum × aureum	Mansell & Hatcher.
Cypripedium Norman	Bella × selligerum	Mansell & Hatcher.
Cypripedium Rosalie	nitens Leeanum × aureum	Mansell & Hatcher.
Dendrobium Gatton Beau	Alpha var. Eleanor × chessingtonense	Sir J. Colman, Bt.
Dendrobium Gatton Belle	Wiganianum × Alpha var. Eleanor	Sir J. Colman, Bt.
Laelio-Cattleya Erica Sander	L.-C. Isabel Sander × C. Luddenmanniana	Sanders.
Miltonia Beau Brummel	Bleuana Queen Elizabeth × Venus	H. T. Pitt, Esq.
Odontioda Ella	Oda. Charlesworthii × O. Dusky Monarch	Charlesworth.
Odontioda Induna	Oda. Thwaitesii × Odm. Rolfeae	R. G. Thwaites, Esq.
Odontioda Kathleen	Oda. Moyra × Odm. percultum	Charlesworth.
Odontioda Mecene	Odm. Solon × Oda. Orion	Charlesworth.
Odontioda Miala	Oda. Thwaitesii × Odm. eximium	R. G. Thwaites, Esq.
Odontioda Mirella	Odm. Thompsonianum × Oda. Charlesworthii	Charlesworth.
Odontioda Nona	Joan × Aphrodite	Charlesworth.
*Odontioda Redbreast	Oda. Bradshawiae × Odm. Amethyst	F. J. Hanbury, Esq.
Odontoglossum Horus	eximium × Georgius Rex	R. Gerrish, Esq.
Odontoglossum Indian Prince	Solon × St. James	McBean.
Odontoglossum Madrigal	Magali Sander × Lawrenceanum	Sanders.
Odontoglossum Marion	Amethyst × Mars	McBean.
Odontoglossum Monte Carlo	Gatton Emperor × eximium	Sir J. Colman, Bt.
Odontoglossum Mrs. John Owen	ardentissimum × Empress of India	John Owen, Esq.
Odontoglossum Prince Imperial	Promerens × Diamond	McBean
Odontoglossum Sir Woodman Burbidge	harvengtense × majesticum	Sanders.
Potinara Luminosa	S.-L.-C. Jeanette × B.-C. Ena	Charlesworth.

* Not Oda. Charlesworthii × Odm. Amethyst. as previously recorded.

ANNUALS FOR GREENHOUSE AND CONSERVATORY DECORATION.

DATURA CORNUCOPIA, D. CHLORANTHA FL. PL. AND D. METELOIDES.

ALL these are half hardy annuals which may be used for greenhouse decoration during the summer. Seeds are best sown during March in a warm greenhouse. The successful cultivation of these handsome plants presents no difficulty, as they grow freely in any good potting compost and enjoy liberal feeding. They throw up a single stem which should not be stopped. Good examples of these various Daturas may be flowered in six-inch pots.

DIASCIA BARBERAE.

THIS pretty South African plant, although really a short-lived perennial, is usually regarded as, and treated as, a half-hardy annual. The plant grows only about nine inches high, but produces its pretty, coral-pink flowers freely all through the summer. Seeds should be sown early in March in a greenhouse, and the resulting plants grown on into 48-sized pots which are sufficiently large for flowering specimens. Plants of Diascia Barberae are pretty when used for filling small baskets. *J. Coutts.*

WATERING.

The watering can is one of the most important items in garden equipment, yet probably no implement is more abused in its use. In connection with the cultivation of outdoor crops in particular, the use of the watering-can is little understood and a considerable amount of labour is wasted and much mischief done in consequence. Most growers insist on the importance of applying water to pot plants in sufficient quantity to ensure that the whole ball is thoroughly soaked, yet many fail to carry this principle to outdoor crops and are quite content to merely wet the surface of an outdoor bed or border.

Surface watering, if not the worst form of the abuse of the watering-can, is certainly the most frequent, and is commonly practised by amateurs who are anxious to water everything in the garden, and not infrequently by all grades of horticulturists. Sometimes employers insist on watering beyond the possibility of the work being done properly and, in such cases it cannot be a matter of surprise that a great extent of surface is moistened without a single plant being really benefited. A driblet of water is useless and does more harm than good, as the moisture on the surface soil attracts the roots towards it and when it is evaporated they are left to perish under the burning influence of the sun.

Plants of all kinds do better without this dribbling system than with it and unless there is sufficient time and water to give each plant a copious supply it is better to give a portion of them a good soaking and let the rest go without than to spread work and water over an extravagant area.

By dealing with a selected portion of the garden every day on this plan a comparatively short supply of water may be made to go a long way. This system may be adopted in applying water to everything in the open requiring it, and is as well adapted to operations on the small as on the large scale.

Even when water and labour are abundant, however, the indiscriminate use of the watering-can on outdoor crops is not desirable. A surface mulching is in nearly all cases of much more benefit than constant watering, and it should be a principle in every garden to mulch liberally, wherever practicable, immediately after watering. By this means evaporation from the surface is prevented and a constant root-action is maintained, whereas the mere application of water and then allowing it to escape into the air gives little benefit to the plant.

Where mulching is not practicable, as in the case of annuals sown broadcast and some bedding plants, the surface soil should be pricked over as soon as it becomes workable after the application of water. This prevents the formation of a hard crust and is equivalent to applying a mulch of other material in that it stops loss by evaporation from the lower soil.

There is another phase of the water problem which calls for consideration and that is the quality of the water itself, as water, like other things, can be good or bad according to circumstances. The water of a river or pond and that of a tank filled by rainfall may be considered the best possible for any purpose in the garden, but water from a well is almost certain to be more or less hard and therefore unfavourable to vegetable life. In the majority of cases water obtained from deep wells and used before it has been exposed two or three days to the influences of the atmosphere is likely to be hurtful to vegetation; hence, where a well is the source of the water for gardens, large tanks should be provided at the surface for its exposure. Rain or pond water may be applied advantageously in the evenings to all growing crops, but to be really efficacious sufficient should be given to reach a depth of not less than a foot or eighteen inches.

Where supplies of water are limited or scarce and newly planted shrubs need moisture much more good can be done by sprinkling it frequently over the foliage than by applying it to the roots. When summer crops are planted on the ordinary level it is often a matter of extreme difficulty to reach their roots with water as the surface becomes hard, for the water runs off and penetrates the ground far away from the subjects it is intended to benefit. The remedy for this is to sow or plant below the ordinary level, and although this system would not do on cold, wet soils, it is certainly capable of universal adoption on light soils.

Kitchen garden crops grown in shallow trenches can be watered more effectively and in much less time than would be taken to water the same extent of ground where planting on the level is practised, and in light, sandy soils, an additional advantage is derived from having the roots more beyond the direct influence of the sun's rays.

Water as an efficient and cheap insecticide is not sufficiently appreciated but capable of extended use as such, and while it is not claimed that it will prevent the occurence of such pests as thrips, red-spider, mealy-bug, etc., amongst plants, it is unquestionably true that the judicious use of water for overhead sprayings tends to the promotion of that vigorous growth which is able to keep pests in check. *W. Auton, Pyrford Court Gardens, Woking.*

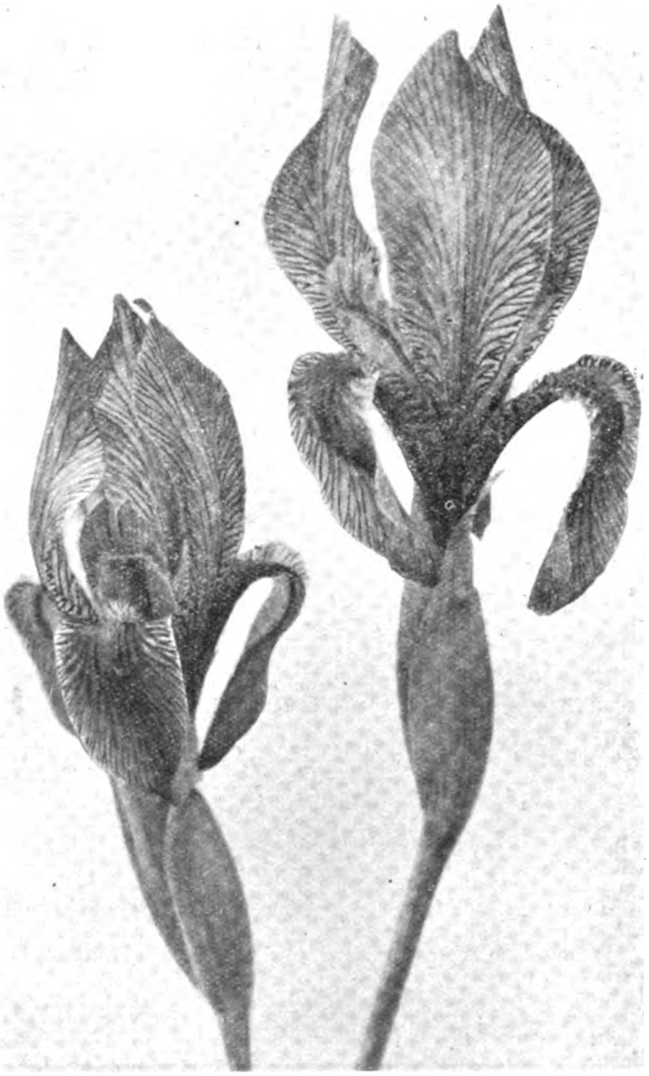

FIG. 126.—IRIS TURKOMAN.

R.H.S. Award of Merit, Chelsea Show, 1919; R.H.S. First Class Certificate, May 13, 1924 (see p. 295).

FRUIT REGISTER.

LARGE APPLES.

From half standard and espalier trees of Peasgood's Nonsuch, fruits eighteen ounces to twenty-four ounces may be obtained. The soil should be impregnated with flowers of sulphur and receive a slight dusting of sulphate of iron, some time before February.

Annie Elizabeth is a large, heavy, handsome Apple, with colour markings of great beauty. Give attention to summer pruning in the case of bush, cordon and espalier trained trees of this variety.

Emperor Alexander is a large and beautifully coloured Apple. It does well in espalier, bush and cordon form, and these types of trees produce the best specimens. *Pomona.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C.2.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* Publisher; *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* Editors. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

PLANT-LORE IN AN OLD LATIN DICTIONARY.

In making use of a black-letter Latin Dictionary of the year 1552, I have been struck with the numerous references to plants; some of which appear to be more or less of a critical character. Without systematically searching the book for botanical information, I have here gathered a few things haphazard. The book in question is about four inches thick, well printed, and adorned with quaint initial letters. It is pleasant to consult, for if one tires of looking up Latin words, there is always the biography of some god or goddess, the description of some well-known classical character, or one of the numerous proverbs to which special attention is obligingly called by a pointing hand, etc. The title-page is missing in my copy, but the colophon reads: "Thus endeth this Dictionarie printed at London in the house of Thomas Berthelet, Anno Domini, M.D.LII." It is a revised edition of Sir Thomas Elyot's Latin Dictionary, and being coeval with the Father of English Botany, Dr. William Turner, it is not surprising to find a reference to him in the Preface as "*vir sane doctus et pius, cuius industriam omnes artis medicæ studiosi, auidissime expectant*" (a truly learned and pious man, whose works all students of the medical art eagerly look forward to), in connection with the need of a revised plant nomenclature.

Many of the entries referring to plants, agriculture, forestry, etc., are quite short ones, but some of these have a charming simplicity, as, for instance: "Daphne, the propre name of a littell mayden, and also of a woodde." A few are laconically unhelpful, as "Coriacesia, a certeyne herbe." Turning to "Hortus" we find how a garden was defined in 1552: "a knotte gardein, or a gardein for pleasure, or an orcheyarde." Under "Quincunx" it may be noted that the idea of Sir Thomas Browne's "Quincunxial Lozenge" was not unknown in England a century previously: "It was also an ordre in settynge of trees in an orcheyarde or gardeyne, veraie exactely, that whiche waie so euer a man did loke, the trees stode directely one agaynste an other, as in this order folowynge" (*i.e.*, three lines of the letter o). An opinion as to the merits of a well-known herbal is given under "Macer," referring to *Macer floridus de viribus herbarum carmen:* "Fynally, that lyttell booke of herbes, is righte profytable in dyuers places to be conned by herte of a yonge scholar, whyche delyteth in that mattier."

Where the plants are described at some length, we may notice the same homeliness of phrase that characterises Turner's *Herbal.* Thus a certain leaf is "lesse than a maydens lyttell fynger;" one kind of Aristolochia "hathe leaues in facion lyke yuy [Ivy], but somewhat rounder, wherein is a sharpe and delicate odour, the floure white lyke a littell bonet vpon a redde knoppe;" and a plant named "Lichnis agrestis" is "an herbe lyke to lyne seede, hauynge almost no roote, and a blue floure, with seedes lyke a calfes snoute."

The uncertainty expressed as to the identities of many of the plants named is a witness of the backward state of botanical knowledge in England at that date. Still more so does this apply to the animals commented upon. Nearly a whole paragraph is devoted to the Elephant, containing much that is purely mythical, such as the origin of Dragon's blood, etc. Of Dolphins, it is solemnly stated: "There hath of theim ben knowen to loue children, and receyue theim to ride on their backes, by the space of . xxx . myles in the sea, beholden of muche people" [!].

In a few instances, original information appears to be given; and I have selected the following to quote at length, as perhaps the only record of how a certain man cultivated Isatis tinctoria *Linn.* in his London garden about 1550:—"Glastum, an herbe, called also Isatis, in englyshe wad [woad], wherewith woulle and woullen clothes are dyed blewe, the leaues are lyke to great sorrell, but greatter and thycker. Cesar writeth, it was so communely knowen in Englande, than [then] called Britayne, that the people, with the iuyce therof, coloured their bodies and visages, to seeme terrible to their ennemies. Of this herbe, wad is made in this wyse: They grynde it with wheles of woodde, rennyng in a compasse trough, vntill the iuyce bee out of the herbe, and than they make it into balles, and laye theim on a bourded floore a certaine space, vntyll they be putrified and dryed into poulder. But the makyng therof hath remayned vnknowen in Englande 1000 yeeres, and mo, vntill nowe of late an honest marchaunt man (zelous of the common weale) hath eftessones nouryshed that herbe in his gardeyn at London, and by the example, which he founde in countreies beyonde the sea, he makyng houses and mylles, to his importable charges, hath nowe experienced to make the same wad to the inestimable commoditee of this realme, yf it bee woorthyly imbraced, the marchantes name is [Ra., *filled in in contemporary handwriting, in a blank space left*] goodman [*i.e.*, Ralph Goodman], a name ryght agreable vnto his qualitees, who deserueth to be incouraged, that by his thanke and rewarde, other maie the rather endeuoure them selues, either to inuent by their wittes, or to attempte by the example of other countreys, to augmente the weale and hononour [*sic*] of this realme of England." *S. Savage.*

FORESTRY COMMISSION'S FILM AT WEMBLEY.

Readers of the *Gardeners' Chronicle* may be interested to learn that the fine film now showing daily at the British Empire Exhibition, illustrating the science of forestry from the nursery to the saw-mill, was produced in districts near Aberdeen. The first section of the film deals with the rearing of the plants at Craibstone, an estate belonging to the Aberdeen and North of Scotland College of Agriculture, situated some five miles from Aberdeen. The venue of the second and third sections is at Banchory, a beautiful village on the right bank of the Dee, and some eighteen miles from Aberdeen. From this district were taken, under the direction of Provost Donald Munro, O.B.E., and at the special request of the Forestry Commission, the sections showing the standing trees in the forests, the felling operations, and the hauling of the timber by traction engines and horses to the saw-mills. The section dealing with saw-milling and the use that the wood is put to was taken at the Silverbank Sawmills, Banchory, of which Provost Munro is Managing Director. The panoramic view shown depicts the village of Banchory and the finely wooded countryside around.

IMPRESSIONS OF THE TRURO SHOW.

The dominant feeling of a "foreign" visitor to the show of the Cornwall Spring Flower Society at Truro on the 6th and 7th inst., must have been one of astonishment that in such a tardy season as the present it should have been possible to get together anywhere in Britain such a remarkable collection of fine early-flowering shrubs. It is generally known that in the ordinary way, the maritime counties on the western side of Britain and parts of the southern coast of Cornwall in particular, have an advantage in the matter of climate in winter over the rest of the country; but, as a rule, the coming of the vernal equinox finds vegetation in the home counties drawing level with that in the west, and by about the beginning of May, the early advantage of the western seaboard has usually gone.

This year, travellers passing from east to west in early May, found that the further westward they went the less advanced was vegetation in general, so that there was still a noticeable difference between the condition of the trees, shrubs, and hedgerows in the Reading-Westbury area, for instance, and those in Cornwall.

The effect of the softer conditions of the opening months of the year is more apparent in such a season as the present than it was in 1923, when the first quarter of the year was unusually mild in all southern and western districts, and it was not necessary to journey to Cornwall to see Rhododendrons in good form. Were there any doubt on the point the Truro show made it plain that though an English Riviera is a figment of the imagination, numbers of western gardeners are able to grow flowering shrubs which, except perhaps in some wind-sheltered sun trap on the shores of the Channel, cannot be grown at all in the home counties. Anyone visiting Cornwall in early May for the first time would probably be hard put to it for an explanation of the western advantage in climate, so obvious at the Truro flower show, but the solution is doubtless to be found in the geographical position of the land and the weather map of our Atlantic coast.

After such a memorable season as 1923, it was hardly to be expected that Rhododendrons would again provide the *clou* of the show, and in the mass they were hardly up to last year's high standard; but notwithstanding the inclemency of the weather the exhibits of the genus as a whole were fine, and, as was to be expected, that from Caerhays Castle in particular was replete with interest to growers of the genus. The best of the Kurume Azaleas are slow to get into cultivation, but there can hardly be anything among them to beat the fine white-flowered specimen shown by Mr. Grigg. The "blue" R. Augustinii again showed what a poor thing the type plant is, and judges of hæmatic colouring must have found it as difficult as ever to decide between R. neriiflorum and R. haematodes, shown by Mr. A. M. Williams, of Werrington, and others. R. Nuttallii, so magnificent at last year's show, was represented by a single truss of the type and one of Major Bailey's form.

The feature of the show was undoubtedly the collections of flowering shrubs which came from garden after garden, and although it was inevitable that there should be a good deal of repetition—which, incidentally, was not without its lessons, because it showed how much more effectively a particular specimen could be presented to the eye by one pair of hands than by another—there were more than enough distinctive shrubs to satisfy the most exacting. Staphylea holocarpa, for instance, shown in admirable form by Mr. P. D. Williams, of Lanarth, seemed to many to stand out as the most beautiful flowering shrub in the show. No doubt many specimens of this fine species are in existence in different parts of the country and Ireland, but they are hard to find, and the sooner the tree gets into general cultivation the better for horticulture, for it can hardly be excluded from the list of super-excellent plants discovered by Mr. Wilson. Home-grown seeds do not germinate, but there can be no insuperable difficulties in propagating the plant in other ways.

An older friend, Sophora tetraptera grandiflora, from Ludgvan Rectory, ran it close, however, and Pieris formosa, admirably shown by Mr. C. H. Hext, was as satisfying as are all the members of the select family to which it belongs. Mutisia Clematis, quite beyond the powers of eastern gardeners except in such exceptionally hot years as 1911 and 1921, was well shown by the Rev. A. T. Boscawen, and in the same group there was a fine specimen of the familiar Erica melanthera. The Australian Eriostemon neriifolius, evidently at home in Cornwall, was well shown by Mrs. Bolitho, and it was good to see Illicium religiosum in Mrs. E. P. Rogers's exhibit. Judging by the multiplicity of examples, Prostanthera rotundifolia, a greenhouse plant to many, must be as common as Groundsel in the west.

There was much at the Truro show to excite the envy of gardeners less happily placed climatically, and still more to excite their admiration, for a soft climate is not the alpha and omega of gardening, and a high standard of cultural skill was evident on every hand. Altogether it was a memorable show.

NEW ASIATIC PRIMROSES.

The enumeration of newly discovered Chinese Primroses, temporarily interrupted by the failing strength and ultimately by the death of Sir I. Bayley Balfour, has been resumed by his successor in the office of Regius Keeper, in a critical contribution to the literature of "Primulaceae" in the *Edinburgh Notes*.*

Prof. Wright Smith now introduces us to twenty-one species and nine forms of Primula not hitherto published, together with two already named, which he has investigated in collaboration with Mr. George Forrest. Four of these belong to the middle Forrestian period (1913-14) and one—P. pseudo-sikkimensis—dates back to 1906; the rest are recent, the majority dating from 1922. Three were first reported by Mr. Farrer in the course of the expedition, which ended in such tragic fashion, and are Burmese. Mr. Ward is responsible for five, the Austrian, Dr. Handel-Mazetti, for one, while the rest are Forrestian.

It is, perhaps, inevitable that a large proportion of the new species and varieties should have more interest for specialists than for cultivators, but the descriptions of four are such as to excite a very natural desire on the part of the cultivator for first hand experience of them.

When an explorer so experienced and yet so reserved in his judgment of plants, refers to the Yunnanese species, P. ingens, as "the most robust and one of the most beautiful Nivalid Primulas I know," the cultivator's expectations are whetted, and they will not be depressed by Prof. Wright Smith's expression of opinion that this Primrose "should prove a magnificent species in cultivation if as amenable as P. chionantha."

Mr. Forrest came across this species in flower on Bei-ma-Shan, in June, 1921, "at 14,000 to 15,000 feet, in open, stony meadows, by streams, and three months later he found it again in the same district in fruit, "on moist pasture, by streams." He described it as a plant of 2½ to 3 feet with fragrant flowers of soft blue-purple with grey eye. In habit it has a close resemblance to P. chionantha, which in the short time it has been in gardens has proved easy enough of cultivation in capable hands, and incidentally, is one of the most refined and beautiful of the family, by no means so short-lived as some of the Nivalid section.

No less interesting to the cultivator is another Nivalid, P. Coryana, named for the well-known amateur who has done so much to further the cause of botanical exploration, especially in China. Mr. Forrest found P. Coryana originally when breaking fresh ground in the Mu-li mountains in S.W. Szechuan in 1918, and again in the same country in 1921 and 1922. When travelling over the Litang divide, also in the same area, in June, 1921, Mr. Ward found this species "in damp loam under Rhododendrons at the summit of the range." His field ticket for the plant shows how highly Mr. Ward rates this species:—"The finest Primula I have ever seen, a truly magnificent Nivalid. Flowers very large, the petals more or less reflexed, nodding and pushed forward as in P. vinciflora. The colour varies from red through purple to violet, large central portion of the corolla silver-white with meal, which also powders the calyx, pedicels and upper portion of the inflorescence-axis. Under surface of leaves, brilliant silver."

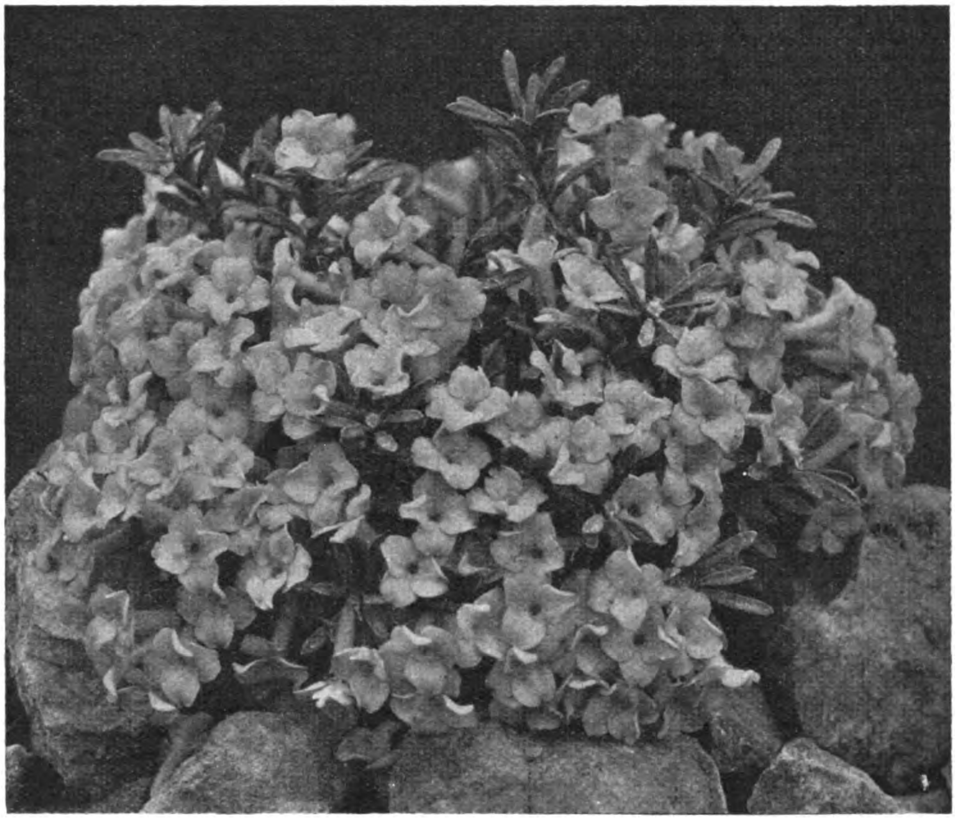

FIG. 127.—DAPHNE RUPESTRIS, VAR. GRANDIFLORA.

R.H.S. First Class Certificate, May 13 (see p. 295).

According to Mr. Forrest, the plant is about eighteen inches high, the "flower fragrant, fleshy, soft rose-lavender, throat filled with sulphur-coloured farina. The under surface of the leaves is peculiarly aromatic." Those who have seen the herbarium specimens of this fine Primrose will agree with Prof. Wright Smith in his description of it as a "truly noble plant of the Nivalid section, very distinct from the other members of the series," and though that section has proved singularly refractory under cultivation in Britain we can only hope that P. Coryana may not present more difficult problems than P. chionantha. At any rate it can hardly be more difficult to keep than P. Littoniana, the most interesting of the Muscarioides section, of which Prof. Wright Smith describes a giant variety, robusta, found by Mr. Forrest in country to the south-east of the Mu-li mountains, in 1922. It grew 2 to 2½ feet high in open, moist meadows, and though more robust than the type is not, in Prof. Wright Smith's view, so attractive as the latter when cultivated. P. Littoniana is a stubborn species, and there can be few places in Britain where it is truly perennial. There is little difficulty in raising the plant to maturity from seed, but it is singularly prone to dissolution afterwards. Shade seems essential to its welfare.

Mournful interest attaches to P. Valentiniana, a tiny dwarf species of the section Amethystinae, which its discoverer, Mr. Farrer, rated highly, as well he might, if only because of the singular colour of the flower, described by Mr. Forrest, who found the species later, as "a deep wine-crimson matching the darker forms of P. secundiflora," a species familiar to students of the genus. Coming from open, peaty, alpine meadows at about 15,000 feet, this dusky little beauty will probably tax the skill of keen cultivators to the utmost.

As is to be expected, the majority of the species and varieties described grow in moist places either in sun or shade; a few only flourish in arid places and these, as a rule, are dwarf cushion plants. P. tapeina is an example. It is but an inch high, the flowers springing from cushions as much as two feet in diameter on dry situations on limestone cliffs.

It is of the happiest augury that in this enumeration of Primulaceæ there is no lack of that lucidity of exposition which has become a tradition of the "Edinburgh Notes." *A. G.*

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* "New Primulaceae," by Prof. W. Wright Smith and George Forrest. *Notes from the Royal Botanic Garden, Edinburgh*, Nov. 1923, Vol. xiv., No. lxviii.

NOTICES OF BOOKS.

Cultivated Irises of Japan.

In a handsome five-volume book*, Dr. Manabu Miyoshi gives an interesting and superbly illustrated account of the principal Irises cultivated in Japan but by far the greater part of the work deals with Iris laevigata (Kaempferi) and its many varieties, for which the Japanese growers are famous. I. laevigata, I. albo-purpurea, and I. sibirica var. orientalis are regarded as similar in form and character. In a wild state they are found chiefly in the central and north-eastern part of the Island Kingdom of Japan. I. laevigata (Kaempferi) and I. sibirica var. orientalis are found growing in dry places as well as in damp ones, but I. albo-purpurea is only found in marshes or ponds. Such species as I. Rossii, I. ensata var chinensis, I. pumila, I. germanica, and I. florentina are also cultivated in Japan, while I. setosa, I. japonica, I. gracilipes, and I. tectorum are also popular, but these last differ considerably in habit and flower from I. laevigata.

Dr. Miyoshi states that a study of ancient Japanese classics and old pictures shows that I. albo-purpurea has been cultivated in Japan from ancient times, but in modern times I. laevigata has become such a fashionable flower throughout Japan, owing to its beauty and wide range of form and colour, that I. albo-purpurea and I. sibirica var. orientalis have fallen into disfavour and been almost forgotten.

The cultivation of I. laevigata can be traced back to the seventeenth century and in the eighteenth century the plant attained an important position in Japanese floriculture as an ornamental flower for the garden. A century ago, however, this beautiful Iris obtained a new lease of life and favour as a consequence of the interest taken in it by Sho-oh Matsudaira who lived in Yedo. Father and son together, after two generations of devoted attention to this Iris, succeeded in obtaining two-hundred-and-twenty-two new varieties, some of which are still grown and highly esteemed. In his manuscript this famous raiser expressed his utmost joy when for the first time he raised several fine varieties by writing "indeed these types have been sought for these sixty years."

At the present time the Iris Gardens at Horikiri, Tokyo, are the most famous in Japan. The oldest one was formed there about one-hundred-and-fifty years ago and contains four-hundred-and-forty-one different varieties of Iris laevigata. In these gardens the plants are grown in ponds, whereas at Sumiyoshi, Osaka, they are cultivated in dry places. It is interesting, however, to note that the special method of cultivating these Irises as originated by Matsudaira, is still followed in Kumanoto, Kyushu, where many growers cultivate them in pots.

Although Iris laevigata shows no distinct variation from the type in its natural state, it has revealed remarkable versatility in variation under cultivation. In accordance with the usual methods of florists, the varieties have been classified, and the classification is summarised as (1) change of form: (2) variation in size: and (3) variation in colour. In regard to "form," there is variability in the position and number of the floral parts and in this section there is a group devoted to peculiar and fancy forms, variously described as nail-shaped, ball-shaped, Lotus-shaped, crane-shaped, wheel-shaped, and crown-shaped. In regard to size, there are varieties of regular form with from three to twelve petals, and in some of the multi-petalled forms, the three inner petals are greatly enlarged, whilst certain of the three-petalled flowers have blooms so much as one foot across. In the "irregular" varieties there is a variation in the form of the pistil and stigma and the flowers may be four-petalled or five-petalled. In the "colour" group one section is devoted to self-coloured flowers—reddish-purple, red, indigo and white—and another section to many-coloured flowers, which again are sub-divided into spotted, dotted, tinged, striped, brushed and margined varieties, in addition to those which have their outer and inner petals of different colours. It is pointed out that some of these characters remain true when the varieties are raised from seed.

In the beautiful plates which form the great attraction of this work, no fewer than one hundred forms of Iris laevigata are figured, so that the sectional types are fully illustrated. The remainder of the plates are devoted to illustrations of the "relatives" of I. laevigata *Teizo Niwa.*

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* *Hana-shobu Dzufu* (Plates of Japanese Irises). By Dr. Manabu Miyoshi. Vols. I-V; plates 1-105. £5 10s. Tokio. British Agents, Messrs. Wheldon and Wesley.

RHODODENDRONS.

Classification and Distribution.

(*Continued from p.* 257.)

The genus Rhododendron (including Azalea) belongs to the Natural Order Ericaceae. Thus, though there is no wild Rhododendron in Britain,* its kinsmen, the Heaths, Whortleberry, Cranberry, Bearberry, and others are common in hilly districts where the soil is peaty or sandy. Moreover, species of Enkianthus, Gaultheria, Cassiope, and Clethra, also near relatives, are familiar in English gardens. It must be confessed, however, that Rhododendron (with a few other genera) is, as regards kinship, a cousin once removed from the above.

However, the ordinary Rhododendron of commerce is a sufficiently familiar object in many parts of the country; and even more so are those species which, boasting deciduous foliage, are popularly called Azaleas. However, though everyone knows what a Rhododendron is, it would be impossible to frame a description in words of one syllable, which would include all the known species; we must fall back on generalisation.

Rhododendrons vary in size from big trees to shrubs, bushes, under-shrubs, and finally prostrate plants no larger than Creeping Jenny. A few are epiphytes. There is no climbing species, and in that respect Rhododendron is inferior to its great rival the Rose. Though evergreen (except the Azaleas), true winter buds are formed. They are of characteristic shape, and the bud scales are often gummy and usually deciduous. The leaves are entire, leathery, or coriaceous, and either glabrous or usually covered below with a more or less thick indumentum of felted hairs, or encrusted with scales. They tend to form rosettes at the ends of the shoots, an arrangement which is much more conspicuous in some species than in others. Sometimes the foliage is aromatic, more particularly in dwarf forms.

Generally, the flowers are borne in terminal umbels, racemes, or corymbs called "trusses." More rarely the trusses are axillary, or the flowers solitary. The structure of the flower is, or ought to be, ideally, as follows (occasionally it in fact is):

Calyx: Small, with five equal lobes, more or less persistent. Sometimes, it is large, or non-existent, or has the lobes unequal. But that is, perhaps, hardly surprising seeing that there are about a thousand species all trying to vary and cause as much confusion as possible.

Corolla: Campanulate, funnel-shaped or occasionally tubular; five-lobed, slightly oblique, often fleshy; white, yellow, or red, or some combination or permutation of those colours, generally speckled or blotched; sometimes lepidote outside.

Stamens: Ten (in the Azaleas usually five), sometimes adherent to the base of the corolla (*i.e.*, almost epipetalous).

Filaments: Often hairy at the base.

Anthers: Oblong, opening by apical pores.

Pollen grains: Coherent, attached by threads, often sticky.

Style: Terminal, simple, usually longer than the stamens, and curved, but sometimes very short and straight; stigma capitate.

Ovary: Always superior, generally five-celled, with axile placenta.

Seeds: Small, numerous, winged; being dry and very light they are easily scattered and carried a short distance by wind.

Fruit: A capsule, splitting to the base by five valves—or more, if the ovary is more than five-celled.

But Rhododendrons are fickle subjects. They cannot be cribbed, cabined and confined within the bounds of a definition without making it no definition at all. Besides the exceptions mentioned above there are many more.

In R. Falconeri and its allies there is multiplication of parts; the corolla is ten-lobed, the capsule twenty-celled and there are twenty or more stamens. Also there is no calyx. But could the ordinary person on that account fail to recognise R. Falconeri for a Rhododendron? Of course not. Why? Simply because it looks like one, and he is not too wise to the fact that well-behaved Rhododendrons have five-lobed corollas, a calyx and ten stamens—he has never counted them. In several of the 'Lapponicum' Rhododendrons the flower colour is neither white nor yellow, nor red, but lavender blue. Need that surprise us? In R. vaccinioides and its allies the seeds are not winged but each has several threads attached to either end.

In R. oxyphyllum the capsule does not open at the apex but in the middle; neither does it split to the base. But the ordinary person again is not cercerned with R. vaccinioides or with the capsule of R. oxyphyllum—which anyway is not hardy—or with any other capsule. So what does it matter?

In some of the 'Cephalanthum' Rhododendrons the corolla is distinctly valve-shaped, and in R. Von Roemeri from New Guinea it is weirdly so. And so on. It is easy to be cynical of definition and unhelpful and clever, but the fact remains that there are few Rhododendrons which would be unrecognisable as such by anyone acquainted with the common or garden varieties.

Long before a genus reaches the dimensions of Rhododendron, some further sub-division is necessary; otherwise it is unwieldly. In a genus so large and universal it is likely that there will be some species which resemble each other more than they resemble other species. Thus these fall into groups of closely related species, and the groups themselves may be grouped in larger series. The earlier efforts at classification were based chiefly on flower characters and habits, and to a lesser extent on foliage and inflorescence. Thus Sir Joseph Hooker divided the forty species known to him into eight groups.

Later, workers such as Maximowicz and Franchet added other sections as knowledge of the genus increased. The botanical exploration of China soon yielded more species than were known from the Himalaya and new groups had to be formed; but the principles of classification remained the same.

With a vastly increased mass of material to work upon, the late Sir Isaac Bayley Balfour proposed quite a new system based on the minute structure of the leaf indumentum, and this he worked out in great detail before his lamented death in 1922. Professor Balfour took the Rhododendron leaf as the starting point (regarding it, in fact, as the organ most sensitive to climatic conditions) and grouped the species according to the nature of the indumentum as revealed by the microscope. *F. Kingdon Ward.*

(*To be continued*).

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* R. ponticum, introduced 160 years ago, is acclimatized and seeds itself freely in Surrey and elsewhere.

THE PLANT COMMONWEALTH AND ITS MODE OF GOVERNMENT.*

(*Concluded from p. 276*).

Mr. Snow, who has shown that the hormone which travels through the wood may be made to diffuse across a film of Motion without losing its potency has also discovered that this is not the whole of the story. Transmission of excitation in the Sensitive plant is apparently of two kinds. There is the relatively slow transmission of a specific hormone by way of the wood vessels of the stem; but there is also another high-speed transmission; far more rapid and much less far reaching. When this high speed transmission of excitation is employed by the stem the track which it follows is not that of the wood vessels nor does it lead to movement of more than two leaves above the point of stimulation. Mr. Snow has demonstrated the existence of these two modes of transmission by the simple device of making very gradually an oblique cut in the stem. As the knife penetrates into the deeper tissues below the cortex—which tissues are known as the phloem or bast—a drop of fluid exudes from the cut. It used to be supposed that this exudation which escapes from certain long, tubular cells is the sign of some hydrostatic disturbance in these cells and that this disturbance leads to the setting up of a pressure wave which evokes the movement of the leaves. But if the knife be stayed at this point, though the water drop gushes out, nothing else happens. Let it, however, be pressed a little so that it penetrates deeper into the bast and reaches to or almost to the cambium which lies between bast and wood and suddenly the high speed transmission takes place; in a flash the two nearest leaves fall. If the knife be withdrawn no further excitation takes place, but if it be pushed home into the wood the second more leisurely mode of transmission comes into play. The chemical messenger which travels into the water current in the wood vessels is released, and slowly but surely as the transpiration current rises through the stem, leaf after leaf falls till all have shown by their position that they have received and responded to the message. These observations come opportunely. Without them I should have been tempted to round off my discourse with a confident generalisation. The varied happenings in the plant commonwealth which I have described, the revival of powers of cell-division in wounded tissues, the heliotropic curvatures of roots and stems, the ordinary response of the Sensitive Plant to shock—all are brought about by specific chemical messengers or hormones.

Many other phenomena of plant response to stimulation are undoubtedly also due to hormones. May it not therefore be that the mode of government of the plant commonwealth is not duplex like that of animals but simplex. Whereas the integration of the animal body into an individual is the outcome of messages of two kinds, the integration of the plant body is effected by messages of one kind only. In the animal body the two kinds are those messages transmitted at high speed along the nerves and those material messages or hormones, which are distributed by means of the blood stream. In the plant body, messages of the latter kind only are at present and with certainty known to pass to and fro between the members of the commonwealth. Until, however, the nature of the high speed transmission of excitation in Mimosa is explored it would be rash to predict confidently that the fundamental difference between plant and animal will be found to lie in this, that the plant commonwealth has not and never had the means of rapid message sending, which in the animal world takes place by means of the nervous system, and that the passionless perfection of plants has been achieved solely by developing the system of special messengers, or adopting Bayliss's metaphor, if the integration of the animal is to be regarded as due to the simultaneous employment of a telegraph system and a postal service—the one for quick messages which may be of a physical kind, the other for less rapid messages of a material kind, then it may be that the integration of the plant commonwealth has been and is effected solely by the employment of the postal system. The one—the animal world—partakes rather of the nature of an empire and the other—the plant world—partakes of the nature of a commonwealth, and if so the title of my discourse needs no further justification.

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* Discourse delivered at the Royal Institution on Friday, March 21, 1924, by Sir Frederick Keeble, F.R.S.

FOLIAGE PLANTS IN THE FLOWER GARDEN.

Although foliage plants have always played some part in the decoration of the garden, it is only during the past ten to twenty years such plants have been utilised to the extent their merits deserve. There is richness and variety of material among foliage plants, which makes them of almost priceless worth from the decorative point of view. In old-time gardening the most frequent use of this type of plant was for carpet bedding and mixed bedding. To-day foliage plants are utilised for planting by the water side, skirting shrubberies, gracing lawns, and for grouping with all kinds of flowering plants.

Certain foliage plants bear flowers of effective appearance, but it is for their ornamental leaves they are so much prized.

Of plants of this dual purpose special mention may be made of the half-hardy Canna, Nepeta Mussinii, the Rheums and Lavender. Those that are utilised for their foliage alone include Acacia lophantha, Agave, Acer, Beetroot (black-leafed), Chamaerops, Coleus Verschaffeltii, Cordyline, Centaurea candidissima, Eucalyptus, Fatsia japonica, Ficus elastica, Grevillea, Gunnera, Iresine, Kochia scoparia, Fern-leaved Parsley, Phormium, Ricinus, Santolina, Senecio Cineraria, Lemon-scented Verbena and Yucca. Ferns and succulent plants may be included. The Agave, Echeveria, Euphorbia, Kleinia Mesembryanthemum, and Sempervivum are all useful succulents. Ferns may be grouped by themselves or with other plants. Lastrea stamina may be planted in exposed situations, but the evergreen Blechnums need to be grown in sheltered, shady nooks. Osmunda regalis and Onoclea sensibilis are suitable Ferns for growing in very moist places. Diffused light is better for most Ferns than dense shade. In arranging for the best effects in planting, the characteristics of the different species should be remembered.

As a broad principle foliage plants should be used in moderation when mixed with flowering plants, otherwise the floral effect of the bed or border will be diminished. Regard should also be paid to the size of the border and colours employed therein. Foliage plants are most useful for separating badly blended colours. They are also sometimes used as "dot" plants in the flower beds. And their purpose may be threefold—to relieve flatness, to create additional variety, or provide slight shade for the other occupants of the bed.

An example of "dotting" is the variegated Abutilon among masses of purple or yellow Violas. Nepeta Mussinii makes a delightful bordering against stone walls. Senecio Cineraria, a finely cut grey foliaged plant, is a most effective edging plant for a bed of scarlet. The cotton Lavender (Santolina) and the ordinary Lavender harmonise well with monthly Roses. *C. Turner, Ampthill Park.*

FLORISTS' FLOWERS.

THE DAHLIA.

The older generation of gardeners regarded the Dahlia principally from the exhibition point of view; if the flower was handsome no other qualities were required, because the stems, however weak they might be, could be wired for the exhibition table. Since, however, wire supports have been tabooed, the one great quality required is a long, stiff, flower stem. The newer varieties are now tested in the Wisley Garden of the Royal Horticultural Society, and there, side by side, a considerable number may be seen. The plants are cultivated in a natural manner; no thinning or disbudding of the growth is done, therefore those few which manage to come through such a test are eminently suited for garden decoration. These trials have now taken place over three seasons and only those sorts which receive the commendation of the Committee are retained for further use, along with the newer ones of the year following.

The most useful type of Dahlia for garden purposes includes varieties bearing medium-sized to small flowers in great profusion, with a dwarf habit of growth and flowers developed on long wiry stems. Crimson Flag has already become a favourite variety for planting in masses in the London Parks, and it is safe to predict great popularity for this sort. It is distinctly pretty in its vivid colouring of crimson and the dark green of the rather small foliage. Fedora, like the above, has double flowers in salmon or yellow shading. A third good variety is Aglaia, with flowers of a pinky-fawn suffusion, very free and distinct. Vida, with orange and pink shadings is a free-flowering plant about a yard high. Our Annie, shrimp-pink, and North Bell, carmine on a yellow ground, are two of the earliest members of the type, known as miniature Paeony-flowered. Trixie in scarlet on similar lines is also good. Peach, of a light pink shade, is a charming variety. Mac bears buff and yellow flowers in quantity, and, like the last named, received an Award of Merit last season.

Among the more striking sorts that give larger blooms and make taller and stronger growths, suitable for borders, with a background of trees, are Aphrodite, pure white, with a long stalk; Nancy, a variety with silvery-pink flowers, and one of my special favourites; Enchantress, which gives a wealth of big blossoms of a light pink shade; Psyche, yellow; I cannot call to mind any other yellow Dahlia of so rich a shade; Vesuvius, brilliant red—there are, I believe, two Dahlias named Vesuvius, the one I refer to was raised in Holland—; Scarlet King; Mrs. Courtney Page, mauve on a yellow ground, and Salmonea, a very attractive kind in salmon-pink shade.

President Wilson, crimson-scarlet, is also exceptionally good and showy. Jonkheer Van Tets must not be omitted from the list, for it bears big Cactus-like blooms of marble, or ivory-white. Another Dutch variety which always attracts attention in a cut state is the pretty light-pink Mrs. H. C. Dresselhuys, although up to the present this sort has not proved a first-class growing plant.

One is inclined to write but little of other types of Dahlias as seen growing with those sorts already named, although Susa and Bishop Crossley are a pair which cannot be passed. These have distinctly small foliage, are dwarf of habit, and develop masses of single scarlet flowers. Individually, they are less formal than what may be regarded as the ordinary single Dahlia; when better known, however, this type may be preferred to that much-talked of variety Coltness Gem. Jeweltee is a pretty little double bloom in soft pink colour, and the plant is dwarf.

The blooms are excellent for cutting purposes; and Snowdrift gives tiny light-looking Cactus-shaped flowers commendable for the making of wreath's and other floral designs.

The Dahlia for exhibition purposes presents the flower in quite a different aspect from that noted in the important test mentioned, for here it is required as highly developed as good cultivation can make it, necessitating the thinning of the branches and flower buds. The plant is prevented from flowering on its late lateral growths by removing them, thus giving time for the earlier bloom buds to expand. How effective in the garden plants grown with a limited number of branches are only those who adopt the plan can appreciate, for recent varieties of the elegant Cactus forms have good flower stems, although they may fail when managed in the manner adopted at Wisley.

Remarkably fine white blossoms may be obtained from the variety Henry Woolman, and those of scarlet colour from Gorgeous; Albert E. Amos is a stiff-stemmed sort that gives shapely blooms of a coral red colour; John F. Woolman, a masterpiece in size, is of a fawn shade; and these appear to me the better of the novelties.

Mammoth, of purple hue, Abbotsford: salmon-pink, and Elsie Jackson, yellow, speckled red, are three good Dahlias of recent introduction; and among the slightly older sorts, Sydney Port, suffused yellow, and Mrs. C. A. Gillatt, rose on yellow, will be found most useful for shows. Some of the older sorts, such as F. W. Fellowes, orange-red; Mrs. M. Stredwick, pale pink; Pierrot, amber, tipped white; and Silverhill Park, white, are very choice.

The introduction of some of the prize-winning varieties of American origin—the Giant Decoratives, has probably created a taste for huge masses of colour in individual blooms, and there are several fine home-raised varieties of this type. Dr. Tevis, rosy-salmon, Amen Ra, bronze-orange, Mrs. Carl Salbach, pink and cream, and, I think, the white Polar Bear, are from abroad, but Cambria, pale-pink, Futurity, salmon-pink, Roy Hay, soft orange shade, President Wilson and Fireflare, scarlet, and The Prince, crimson, with Porthos, a bluish-lilac shade are home-raised. Psyche should be included in this list, for when grown to a large size, the yellow blooms are especially pleasing. *H. S., Woking.*

HARDY FLOWER BORDER.

TRILLIUMS.

The Trilliums constitute a showy and decorative class of dwarf, hardy perennials, commonly known as Wood Lilies. They have stout, simple stems, rising from a tuber-like root, bearing a terminal whorl of three leaves, from which is derived the popular appellation of Trinity Flower. The beautiful erect or drooping flowers are of various shades in the different species.

These showy North American plants should be planted in the autumn or early in spring in moist, shady situations, and in sandy peat and leaf-mould. They quickly become established, and flower during April, May and June.

The most showy are T. cernuum, which grows about one foot high and bears large, nodding, white flowers, faintly tinted with purple; T. erectum (syn. atropurpureum), a species with large, rhomboid leaves and large crimson-purple flowers; the variety album has creamy-white flowers; T. erythrocarpum (The Painted Wood Lily), the small flowers of which are pure white, with a crimson blotch at the base of each petal: T. grandiflorum, which bears large, snow-white flowers of great beauty, and rich, green leaves; the flowers pass off a pretty soft rose colour as they age. The variety grandiflorum roseum, has rose-coloured flowers; T. nivale, a dwarf-growing plant with snow-white flowers and marbled and spotted leaves; T. recurvatum, a most beautiful and remarkably distinct Trillium, producing large green leaves that are prettily marbled, and deep purple flowers, and T. sessile, Snow Queen, one of the finest blooming of the Trilliums, with large, snow-white flowers.

The Trilliums are all admirably adapted for planting in shady nooks in the rockery, border, or woodland garden. *W Logan.*

BULB GARDEN.

THE WHITE MARTAGON LILY.

The old Martagon, or Turk's Cap Lily, whose pale purple flowers have for generations been a feature in British gardens will grow almost anywhere, even naturalised in woods and by lanesides. I know of a place where hundreds of this Lily are growing in the most natural way in the broad grass on either side of a delightful woodland path. They are very effective at flowering time, their general tint being broken here and there by fainter hued seedlings or the snowy white of seedlings which have sprung from the others. How many years these Lilies have been there no one can tell. Possibly they are relics of the olden days when a monastic house stood near by and to whose occupants this fine demesne owes some of its charming features. The Martagon Lily is a woodland plant and the finest white ones I have ever seen were in a border backed by Gooseberry bushes, whose roots had penetrated the border and were entwined with those of the Lily. The bushes also overhung the Lilies, and through them there sprang the lovely spires of wax-like flowers, which seemed all the finer from their surroundings and the healthier from having their roots permeated by those of the Gooseberries. Other deciduous shrubs might be used for a similar planting with equally good results. *S. Arnott.*

ERYTHRONIUMS.

The Erythroniums are showy, early spring-flowering plants, and a prettier sight cannot be imagined than long rows or masses of their delightful Cyclamen-like flowers in various shades of white, cream, pink and yellow, and with prettily marbled and mottled foliage closely nestling on the ground.

E. Dens-canis, which is commonly known as the Dog's-tooth Violet, is a European species that does well in shrubbery borders and woods, on shady rockeries, etc., for the plant will succeed either in full sun or partial shade. The flowers are of white, rose, and purple shades, and the foliage is prettily variegated. The plant grows only a few inches high, and soon becomes naturalised.

The American species far excel the European one in beauty and graceful stature, having taller, branched flower scapes with from three to nine flowers on a stem and prettily marbled or mottled foliage.

It is often recommended that these hardy American species are only adapted for shady places such as in woods, but in the neighbourhood of Enfield, Middlesex, the following were in flower this spring for some weeks in full exposure to the rays of the sun. With the exception of E. americanum, which grows from three inches to four inches high, these species are from nine inches to twelve inches tall.

E. Johnsonii is a very pretty plant with clear rose-pink flowers that have a yellow zone. The variety White Beauty produces tall scapes of creamy-white flowers. E. grandiflorum robustum has bright golden yellow flowers. Pink Beauty has flowers of a lovely shade of soft Cattleya-pink with a yellow zone. E. Hartwegii, E. citrinum, and E. californicum are also very attractive. The plants referred to at Enfield are planted in sandy peat from six inches to nine inches deep, and in the shade of alpine Rhododendrons and Ghent Azaleas.

The large-flowering American species are charming for pot culture for the cold greenhouse, and they may be potted at any time during September or October. *W. Logan.*

HARDY FRUIT GARDEN.

PEACHES IN THE OPEN.

One of the most important details in the cultivation of Peach trees on walls in the open is keeping them free of aphides. Light syringings with Quassia extract will keep the pest in check if it is used before the aphides are entrenched in curled up foliage.

The winter has been a long and severe one, the spring is backward, and this has to be taken into account in commencing disbudding. The end of April or beginning of May is usually the best time to commence this operation; in cold and late districts it is better to delay the work for a little time rather than expose the young fruits to the cold by the early removal of the protection afforded by the foliage; at the same time, where the shoots are much crowded the work of thinning them should not be delayed too long otherwise much of the plant's energies will be wasted on growth that is not needed.

Many growers contend that a good breadth of foliage encourages root action, and this is true provided there is space for the leaves to attain their full development, but not otherwise. Disbud by degrees; begin with the most vigorous trees, first removing the foreright shoots, unless by doing this a young fruit will be robbed of protection, in which case it may be wise to pinch the shoots back to two or three leaves, and allow the latter to remain until the weather becomes more settled. I generally leave the shoots about six inches apart up to the terminal; these in due course are still further reduced, and all that have been pinched as thinning is carried out are taken away with the spare fruits. Be the crop heavy or light, or a failure altogether, pinching and disbudding must not be neglected. The majority of growers when disbudding their Peach trees, select young shoots for training in on either side of the branch, being content to take the best shoot wherever it may be placed, but there is some advantage in leaving all the young wood on the upper side of the branches, the sap flowing upwards with greater freedom than downwards, and this is a benefit to the lower branches if not to those in the upper part of the tree.

Disbudding should be finished by the middle of June; as a rule one healthy shoot should be retained at the base, and another at the extremity of the branch to form a leader to draw up the sap. In addition to the two shoots named, one young shoot may be retained in the middle of the branch if there is space on the wall to be filled.

In some cases, by deferring the removal of the shoots and leaves, weak, but otherwise healthy trees gain rapidly in strength, whilst others inclined to grossness may be kept in check by careful disbudding and pinching.

When the days lengthen and the nights become mild and genial, the syringe should be brought into use.

On healthy trees fruits set freely, and the thinning of the crop should be commenced early and be finished in good time, as healthy, well-nourished trees seldom cast many fruits at the stoning stage. It is difficult to say what number of fruits should constitute a crop, as so much depends on the condition of the individual tree, but fine fruits one foot apart all over the tree are more valuable than a larger number of an inferior size and quality. Liquid manure, or a good mulch applied at the right moment, is of great value to heavily cropped trees: at the same time it is safer and wiser not to overcrop.

Tie the shoots when they are eight inches or ten inches long and keep them close to a warm wall. In a dry season very few Peach trees receive sufficient water either at the roots or through the syringe; in a well-drained border it is next to impossible to overwater a healthy tree when in full growth in a dry summer. *F. Jordan.*

LEAF-TIME PRUNING.

The literature of the art of pruning is so vast, that it is with some diffidence that one dares to venture on any addition to it. The classic division into "winter" and "summer" pruning, led to the adage "winter pruning for wood, and summer pruning for fruit"; and, no doubt many, besides myself, have had ocular demonstration of the truth of the latter phrase. It was in Vercier's excellent *Arboriculture Fruitière*, 1912, that I first came across an account of the "short summer pruning" (*taille courte d'été*), since generally known as *la taille Lorette*, an account which is perhaps one of the best that has been given of the procedure. Then came the *taille Lorette* (Versailles) by the master himself, the first edition in 1913 being soon followed by the second in 1914, and later, by the third, in 1921. In this system winter pruning was entirely suppressed, all the work being done in the growing period; inasmuch as it is hardly a "summer" affair, I propose to call similar methods "leaf-time pruning," as a more distinctive and correct term.

The obvious difference between winter pruning and leaf-time pruning is that in the former case, only certain channels of growth are left and the plant has scope to use such of them as it may be disposed to; whilst in the latter, more power in the actual direction of the sap flow can be hoped for. In his book, Lorette dealt mainly with the Pear and the Apple, but added special methods for the Gooseberry and the Peach; apart from the latter, the Prunus tribe received no attention. The formula for the Gooseberry seemed to give scope for a rather similar trial on the Plum, the Morello Cherry, and the Quince; so it happens that at the present time I have a range of Red Currants and Gooseberries on walls which are in their tenth year of treatment, and of the others, also *en espalier* or trained on walls, specimens which may be said to have had eight years under the method, for it happened that a practical continuity could be kept during the war. These periods, though not comparable to Lorette's eighteen years, are perhaps sufficient to show the effect of the procedure which, indeed, has led to putting further specimens under the treatment.

The Four-Leaf, One-Leaf System.

Though some slight modifications or differences, especially in regard to dates, may appear as between the various sorts of trees, the general principles may be summarised together for all. In the first place, the procedure applies chiefly to the laterals, for the leading shoots are treated otherwise.

Here, be it remarked, that in any leaf-time pruning it is well to commence by marking shoots that will be required for extensions with coloured wool or raffia; otherwise, one may inadvertently lop off a shoot which should have been retained.

The first pruning is made at or rather beyond the fourth full-sized leaf; in doing this, small basal leaves which in some (e.g. Red Currant) form quite a little basal cluster, are not counted. The index as to the time at which to commence operations is taken to be when the fourth or fifth leaf is fully mature, as appreciated by colour, texture and size. Hitherto, it has, I believe, been the usual custom to take either a given length or a given thickness of shoot as the criterion of the appointed period for operating. It would seem to be far better to take a more physiological criterion, such as is afforded by the maturity of a given leaf. For the first year or two in the practice of the method, I discriminated between stout and slender, long and short shoots; so that those of less vigour were allowed one or two leaves extra; experience did not show that there was much advantage, if any, in results, so that a dogmatic fourth leaf was established for the place to cut, whatever the length or thickness. Moreover, when one entrusts such work to a deputy, it is far preferable to have a rigid rule than to leave matters to some other individual's judgment.

The object of this first pruning is (1) to throw more sap into the basal buds and (2) to habituate the shoot to a lessened sap flow, hence the length of shoot is not considered; incidentally, by the removals, light and air gain more access to basal parts, and aphis-damaged tips become removed; the remaining leaves become enlarged, sturdy and hardened and are less prone to insect attack. Thus far, there is nothing particularly novel in the procedure except the mode of judging the time and the treatment of all shoots, including those which autonomously have ceased to extend. Secondary shoots do not usually grow to an extent requiring interference amongst the Ribes, but may need further treatment with the Prunus group. In such case, vigorous secondary growths are cut back to the leaf whence they sprang (just as in Lorette's technique); lesser secondary shoots may be left if they are not apparently drawing too much sap and have no great opportunity for growth before the second or final pruning of the season.

The second or final pruning is made so as to retain but a single full-sized leaf; small basal leaves not being counted. This is done sufficiently long before the fall of the leaf to allow bud nourishment to occur.

Leading shoots and shoots which are required for extensions are exempted from the first pruning partly to act as "safety valves," but also to provide more length than would be afforded by the fourth leaf rule. Probably about a month later than the first pruning, some shortening may be practised; it is difficult to lay down any rules, but the general principles for guidance would be judged from the vigour of the variety on the soil and exposure in the existing conditions, and the position and direction of the shoots which are concerned. A nearly perpendicular shoot will need shorter pruning than one at an angle of some 45° to the horizontal, whilst those of lesser inclination will perhaps need no shortening at all. The object is to get basal buds to awaken, otherwise it may happen that by too long a pruning a length of bare wood becomes established; in my soil some seven to nine buds are quite enough to leave on more or less vertical shoots at an ordinary winter pruning; in such the sap tends to rush past the lower buds to the growing end, so that they do not acquire sufficient nourishment to break out next season. By a judicious shortening during "leaf-time," however, the sap may be restrained from the growing extremity and made to serve lower and more basal buds. It must be observed that too early and too vigorous an attack on the shoot may cause the appearance of secondary shoots low down during the season. Though this may not be disadvantageous in certain cases, it may entail further work in shortening or pinching them; the main thing to assure is that they do not remain permanently latent. It is impossible to lay down any precise practice, but I find that from a fairly vertical shoot a removal of about a quarter of the length some time about mid-July (Prunus, Apple and Pear) may produce the desired result. By thus endeavouring to nourish basal buds, it is possible to allow greater lengths at the final pruning, and yet obviate lengths of bare wood. When grafts are needed, not more than a mere tipping should be done, and the final cutting done after the fall of the leaf. I have sometimes thought that grafts from stopped shoots are better to use than untreated shoots, but I have no definitely comparative results to record. *H. E. Durham.*

(To be concluded.)

HOME CORRESPONDENCE.

Almond Unhealthy.—An Almond at least twenty years old, with a six-inch diameter trunk, flowered rather poorly in my garden last year and the leaf crop was scanty, the leaves being small. I put this down to the inclement spring following the various droughty periods we have had in recent years. This year the tree has neither flowered nor produced foliage, but I now see that some of the thick branches are sending out shoots direct from the old wood, not from the thin twigs. What is the explanation? I am constantly grubbing up suckers, one of which in the next garden has grown over six feet tall with a trunk two inches in diameter, and some years ago bore fruit in the shape of small Damson-like Plums. *C. Nicholson.*

Primula Lady Thursby.—In your report of the Royal Horticultural Society's meeting, held on May 13 and 14 (p. 295), you refer to my new Primula, which gained an Award of Merit, as Primula hybrida Lady Thursby. It is not a hybrid at all. It is a pure P. pulverulenta. The mistake arose from the wording on the card; the wrong name was put on and the word "hybrida" was not crossed out when the right name was put in. There is a vast difference between a pure P. pulverulenta and a P. pulverulenta hybrid. *G. H. Dalrymple, Bartley, Hants.*

Winter's Injury in the Garden.—I was much interested in your correspondent's (G. Abbey's) article on page 243, and I sincerely trust that he is more or less alone in regard to the extensive injuries reported. It would have been of great interest to many had your correspondent indicated the relative amount of frost registered in his garden, as it must surely have been abnormal to kill Brussels Sprouts, Kale, etc., which everyone considers perfectly hardy. We do not expect plants from Mexico, New Zealand, and Australia to live through a frost that will kill these vegetables, but your correspondent only reports injury to such plants as Choisya ternata, Olearia macrodonta, and only some plants of Dracaena indivisa killed. No doubt the main cause of all his trouble is summed up in his last paragraph, where he mentions the kind of soil he has to deal with, but surely, with efficient draining, this could be greatly improved in course of time. Here, in Ayrshire, we have no very heavy list of casualties to report, all our half-hardy subjects such as Tricuspidaria lanceolata, Drimys Winteri, Olearia Forsteri, Myrtus apiculata, Colletia cruciata, and many others have come through the winter without harm, and as regards hardy vegetables, we rarely have been better supplied. Spinach, which wintered especially well, is now supplying large quantities of green-stuff of good quality. Our severest frost registered during 1923-4 was 8° on March 4, which may, perhaps, astonish some readers who have never visited this western county, but therein lies part of the secret of the luxuriant growth of our Bamboos, Dracaenas and Palms; that and our abundant rainfall keeps everything in fairly robust health, and while even here we sometimes grumble at the weather, it cannot be so bad as it evidently is in Hampshire. *A. T Harrison, Culzean Castle Gardens, Ayrshire.*

Narcissus Bulbocodium citrinus.—Mr. Ralph Arnold's experience with this Narcissus (see page 252), is singularly at variance with mine. A few bulbs, planted ten or twelve years ago in sharp loam at the foot of a retaining wall, have spread by self-sown seeds to a considerable distance, and made a fine show last month with scores of their pale "hoop-petticoats" all facing in the same direction. On the other hand, the golden-flowered type, planted at the same time in similar soil and conditions, dwindled from the first, and has now vanished. *Herbert Maxwell, Monreith.*

SOCIETIES.

NATIONAL AURICULA

(Northern Section).

The Northern Section of this society held its exhibition at the Coal Exchange, Manchester, on Saturday the 10th inst., and although a little less in extent than the average of its shows, the exhibition proved a veritable feast to those lovers of the flower who were fortunate enough to visit it. This Northern Section, in its laudable effort to make the public better acquainted with the Auricula, makes no charge for admission to its exhibitions.

The glorious array of blossoms displayed were of such beauty of form and exquisite colouring that it is difficult to understand why so few make Auriculas a special feature in their gardens. Auriculas are eminently the flowers of the hobbyist and require but little room for their culture.

The old types of grey-edged, white-edged, green-edged, and self flowers have been the objects of special care for two or three centuries. Upon them the banished Flemish weavers who introduced them to this country so long ago, devoted their leisure and produced the forebears of our present-day varieties, which were so well represented at this show.

The more modern section of the Primula Auricula family, styled by the florists "Alpine" Auriculas, are very distinct from the older section, and show a much greater capacity for improvement and variation and bid fair to oust the older class from first regard in popular favour. The improvement in the Alpine Auricula during the past quarter of a century is simply wonderful, as anyone who can remember the older varieties will agree, when viewing the newer sorts seen at this exhibition.

AWARDS.

Mr. **KEN THOMPSON**, of Hale, was the most successful exhibitor in both sections, taking the cup for show and Alpine varieties. In the class for six show varieties (Alpines excluded) he won first place with a grand six, having amongst them the premier plant, a fine example of Shirley Hibberd. The other sorts were Orient, Geo. Rudd, Mikado, Adonis, and Acme. He was closely followed by Mr. W. M. **HYSLOP** and Mr. **FAULKNER**, who also set up fine specimens.

In the class for four show Auriculas, Mr. **THOMPSON** was again first, and Mr J. W. **GARDNER** second.

Three seedling green-edge varieties were shown, and to each a certificate was awarded as follows: to Mr. **GRINDROD**'s Alderman Bentley; to Mr. **FAULKNER**'s Redesmere and Windermere.

There were numerous entries in the single plant classes, and the following varieties won first prize in each section: Grey-edge, Geo. Rudd; White-edge, Acme; Green-edge, Homer; Self, Mrs. Potts; Yellow Self, Wanderer.

ALPINE VARIETIES.

Messrs. **THOMPSON, HYSLOP**, and **FAULKNER** won in the order named for six plants, and a grand show they made. In the class for four varieties, Col. **WALKER** took first place with plants that would be hard to beat, amongst them the premier Alpine—Midas, a variety raised by the indefatigable secretary, Mr. John Yonge.

In the classes for single Alpine plants the awards went mainly to the winners in the other classes.

At a meeting held during the afternoon and presided over by Mr. Edwards, a vote of sympathy was passed to the family of the late president, Mr. Alderman J. W. Bentley, who died on the 10th of March. At the same meeting Mr. Ken Thompson was unanimously elected to succeed Mr. Bentley as President.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Friday, May 9th.—Committee present.—The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, A. Burns, A. Coningsby, J. Cypher, J. Evans, G. Giles, Capt. W. Horridge, J. Howes, A. Keeling, D. Losh Thorpe, J. McCartney and H. Arthur (Secretary).

FIRST CLASS CERTIFICATES.

Odontoglossum Diamond magnificum (*eximium* × *King Arthur*).—A large flower, beautifully marked with reddish-chocolate; the large flat lip has a yellow crest; *O. Fabia, West Point variety* (*Aglaon* × *eximium*).—This Odontoglossum has a white ground with very distinct maroon markings on the petals, the sepals also being heavily blotched. From S. **GRATRIX**, Esq.—*Odontoglossum St. Nicholas, var. Perfection* (*eximium* × *promerens*).—A well-disposed flower, the shaded purple ground being beautifully marked. From Mrs. **GRATRIX**.

Odontoglossum Arachne var. Wallhouse.—A variety of large size and good shape, heavily marked with crimson; the flat lip is large and has a yellow crest. From **JAMES WOOD**, Esq.

AWARDS OF MERIT.

Odontoglossum eximium Avellon; *O. Rosina, var. Marsh and Brasso-Laelio-Cattleya Lady Rachel var. albens* (*B.-C. Queen Alexandra* × *B.-L. Veitchii*) from S. **GRATRIX**, Esq.

Odontoglossum crispum Mrs. Shaw. From **JAMES WOOD**, Esq.

GROUPS.

S. **GRATRIX**, Esq., West Point (gr. Mr. J. Howes) was awarded a Gold Medal for a group of Orchids in variety.

Messrs. **CYPHER AND SONS**, Cheltenham, staged a group for which a Large Silver Medal was awarded.

A Silver Medal was awarded to A. **HANMER**, Esq., Buxton (gr. Mr. G. Giles), for a miscellaneous group.

ROYAL CALEDONIAN HORTICULTURAL.

The ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on the 6th inst., Mr. R. Fife, president in the chair.

A paper, illustrated by lantern slides, was read by Mr. J. R. Matthews, M.A., Royal Botanic Garden, Edinburgh, on "Plant Distribution in Britain." He pointed out that as the ice, which once covered the continent of Europe, retreated, the alpine plants also retreated. Their habitats now were confined to the Alps, Pyrenees, etc., and the northern parts of Scandinavia, and their places elsewhere had been taken by other plants accustomed to more genial conditions. In the south-east of England a greater variety of plants was found than in any other part of the British Isles, and probably these had been gradually introduced from the Continent.

The exhibits were:—Schizanthus and Cinerarias from Mr. J. W. Sword, Inveralmond, Cramond (Gold Medal and highest apreciation); Narcissi from Mr. A. M. Crabbe, Edinburgh (Silver Medal); seedling Narcissus Holyrood from Mr. Angus, Kiven's Knowe, Loanhead (Certificate of Merit); seedling Narcissus Mrs. W. G. Pirie from Mr. W. G. Pirie, Dalhousie, Midlothian (Award of Merit); new border perpetual-flowering Carnation Mr. R. G. Groom from Messrs. Dobbie and Co., Ltd., Edinburgh (Certificate of Merit); Cheiranthus edinensis and Schizophragma integrifolia from Messrs. Dobbie and Co., and Rhododendrons from Mr. Macdonald, Trinity College, Edinburgh.

It was intimated that in the recent examination for the Society's certificates in horticulture, a first-class certificate had been obtained by Mr. John Swan, Prestonfield Gardens, Edinburgh.

Obituary.

Dr. Audiguier.—Chrysanthemum growers of forty years ago will recognize the name of Dr. Audiguier, a famous French lover and raiser of the Chrysanthemum, who has recently passed away at a very advanced age. Dr. Audiguier was one of a group of Chrysanthemum enthusiasts at Toulouse, where he had for fellow workers such well-known raisers of new seedlings as MM. Marrouch, Pertuzes, Louis Lacroix, Simon Délaux, and others, whose names were familiar in the columns of the English horticultural press in the eighties and nineties of the last century. The deceased gentleman, besides being actively identified with many local associations was also a provincial Vice-President for the south-west district of France, on the executive of the French Chrysanthemum Society. Mme. Clémence Audiguier was one of the most popular Japanese show flowers in this country for many years, and who is there among the older generation of growers in this country that does not remember the introduction of Edouard Audiguier, a magnificent Japanese of a lovely shade of purplish crimson maroon, with silvery reverse, introduced by Mr Norman Davis, then of Camberwell! This was the kind of flower that led up to the extraordinary popularity of the Chrysanthemum.

THE LATE MR. W. E. COOLING.

W. E. Cooling.—We much regret to announce the death of Mr. Walter Edwin Cooling, the last surviving member of the well-known firm of Messrs. George Cooling and Sons, Northgate Street, Bath, one of the oldest established firms of nurserymen and seedsmen in the West country. He had been ill for some time past, but did not cease from active participation in the business until within a few days of his death, which came rather suddenly. His father had predeceased him in March. His particular branch of the business had been the seed and bulb trade which he had greatly developed, and for the last few years he had superintended the fruit and Rose tree cultures and general nursery stock. Mr. Cooling was a familiar figure at shows, where he was often exhibitor or judge, and his advice was much sought after. He was also an enthusiastic amateur photographer, a Vice-President of the Bath Photographic Society, a keen supporter of county cricket, and an enthusiastic bowler. He leaves a widow, who will carry on the business under suitable management. The funeral took place on Monday last at Batheaston.

GARDENING APPOINTMENT.

Mr. Charles Oakford, for the past ten and a-half years with the late **GILBERT T. BATES**, Esq., Wells Park, and Mrs. C. T. **BATES**, Donnington Hall, Ledbury, Herefordshire, as Gardener to T. J. **BURROWES**, Esq., Edithweston Hall, Rutlandshire.

THE
Gardeners' Chronicle
No. 1953—*SATURDAY, MAY* 31, 1924.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 58·6.

Actual Temperature:—
Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 28, 10 a.m.: Bar 30·2°; temp. 65°. Weather, Fine.

Genetics.[*] The science of genetics had its birth in Mendel's experiments with Peas. The results of these classical investigations were published in 1865, but remained unknown to the scientific world at large until 1890. Hence the science is still in its lusty youth; but nevertheless, although so young, it has increased and is increasing at so great a pace as to make it difficult for those whose lives are not devoted to genetical research to keep abreast of it. Fortunately, however, the science has had a number of singularly able expositors, and English students owe a particularly deep debt of gratitude to Bateson, Punnet and Doncaster, who have not only contributed brilliantly to genetical science, but have also expanded that science in admirable fashion. In Germany also the researches and writings of Baur—to mention but one of many able geneticists—have done much to extend and disseminate this new knowledge based on he experimental study of heredity. Each phase of development of a science presents special difficulties which must be surmounted if an expositor is to succeed in his attempt to make known the state of knowledge at the time at which he writes. In the early stage he has to make clear the meaning of the new terminology invented to describe and represent the fundamental discoveries. In the next stage during which knowledge accumulates very rapidly, the writer must select and discriminate if his work is not to be overburdened with detail. It is, therefore, rare that good books are written about any science in this second phase. Prof. Coulter, the author of the most recent book on Genetics, has achieved this unusual result. He has written an admirably lucid and succinct account of genetics and one, moreover, which is peculiarly valuable to horticulturists and to botanists; for he has for the most part confined himself to the phenomena of genetics as exhibited by plants. Prof. Coulter has been wise in devoting but brief space to pre-Mendelism speculations. He contents himself with stating the essential ideas introduced by Lamarck, Darwin and de Vries. As is well-known, Lamarck is responsible for the hypothesis that evolutionary change is in animals the result of animal's needs; in other words, of use and disuse and in plants is the outcome of change of environment. This hypothesis, for long out of fashion, appears to be coming once again into favour and Prof. Coulter cites two examples which may perhaps be regarded as providing evidence in favour of the inheritance of acquired characters—which inheritance is, of course, an essential postulate of the Lamarckian hypothesis. Neither of these cases is, however, free from suspicion. That concerning the production of Wilt-resisting strains of Flax from any susceptible race cannot, as it stands, be regarded as conclusive. The other—the remarkable experiments of Guyer, who claims to have succeeded in observing the transmission of an acquired malformation—has not yet been confirmed and remains therefore not conclusively proven. Prof. Coulter's account of Mendel's work and post-Mendelian extensions thereof is excellent. The style is simple and direct and were it not for a curious predeliction for adverbs might be regarded as impeccable—a rare trait in modern books of science. From the new edition which is bound to be called for speedily, it is to be hoped that the author will expunge the adverb "rather." In the present edition it occurs at least six times in the first eleven pages and although the average may fall in later chapters it remains high enough to constitute a constant distraction to the observant reader. This is, however, a very minor blemish to which only a reader who liked the style would think it worth while drawing attention. Developments and extensions of Mendel's discoveries have been made by many workers in different countries. At the present time much of the most fruitful work is being done by Prof. Coulter's fellow-countrymen. But there was a stage, that which followed close upon the rediscovery of Mendel's Laws by de Vries and others, when the British team of investigators so ably championed by Bateson occupied a foremost place and contributed notably to genetical science. To Bateson and his colleagues are due the interpretation of reversion in terms of genetics, the recognition of complementary factors, the discovery of inhibitory factors in plants and the observation of the linkage or coupling of factors with the consequent upsetting of expected Mendelian ratios. Looking back on this fertile time, it is now clear how great has been the contribution made by Bateson to genetics, and it would, therefore, have been more pleasing to the British reader if Professor Coulter, in dealing with the subjects just mentioned, had given some of the original examples, as, for example, the mating of two white races of Sweet Pea to produce a purple-flowered race—reminiscent in colour of the wild Sweet Pea of Sicily. It is true that this example is cited by the author, but only in supplement to other, and if memory serves, later discovered examples. This, however, is to be regarded rather as a sentimental regret than a sober criticism, for however much we in this country may come to realise the greatness of Bateson's work, it has to be remembered that as there were heroes before (and after) Agamemnon, so many other investigators, particularly in Germany and in America, have contributed greatly to advancing this science, and that it is right and proper that a book written by American students should pay special attention to work done by their fellow countrymen. Prof. Coulter's book can be commended unreservedly and particularly to those horticulturists, who in the early days and with a sure instinct, refused to believe that all forms of inheritance of characters obeyed a simple 3:1 rule. From these pages they may learn how the complexity which they knew obtained in plant inheritance, yields to Mendelian investigation and shows itself not as a refutation, but merely an extension of the laws proposed by Mendel. The practical man engaged in plant breeding will also find information of real assistance to him in his arduous work. One example must suffice. Where a certain plant character depends on a number of factors—and some are known to depend on not less than five—to obtain in our generation one of the rarest combinations would require the growing of many acres of plants. The practical plant breeder quite rightly does not work on that lavish scale. But he usually grows a comparatively small number of plants year after year. That also is a bad method. Probability shows that the right procedure is to grow say, one thousand plants in the F_2 generation, select from among that number those which approximate most nearly to the type which it is desired to isolate, grow about one hundred plants in the F_3 generation and about fifty in the next. Among the many other subjects treated of by Prof. Coulter are bud variation—somewhat meagrely done; mutation—excellently done; and sterility—the account of which is the best which we have read. Chapters on hybrid vigour and on sex-determination complete, within little more than two hundred pages, a brilliant survey of the present state of the science of genetics.

Cinchona Bark and its Alkaloids.—Under the auspices of the Chadwick Trustees an open-air lecture will be given in the Chelsea Physic Garden, Swan Walk, Chelsea, on Wednesday, June 4. The lecturer will be Sir David Prain, C.M.G., C.I.E., formerly director of the Royal Gardens, Kew, and previously of the Calcutta Botanic Gardens, and his subject will be "The Economic and Hygienic Relationships of Cinchona Bark and its Alkaloids." The lecture will commence at 5.15 p.m.; the gardens will be open for inspection at 4.30. Full particulars of the Chadwick Lectures may be obtained from Mrs. A. Richardson, 13, Great George Street, Westminster, S.W.1.

Gift from Lord Lambourne.—Lord Lambourne has given half an acre of land to extend the church yard at Lambourne, Essex, where Lady Lambourne was buried last year.

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[*] *Outline of Genetics with special reference to Plant Material*. By Merle C. Coulter. The University of Chicago Press. $1.50; post free, $1.60.

Aldenham House Gardens.—The Hon. Vicary Gibbs has again kindly consented to the opening to the public of the gardens of Aldenham House on the Saturdays of July, August and September, and the August Bank Holiday Monday, on the same conditions as in previous years, viz., that children must be accompanied by a grown-up person, and that dogs will not be permitted. These facilities will not be available on Saturday, July 19, as that is the date of the Annual Floral Fete of the Elstree and District Horticultural Society, at Aldenham Park, when admission is only possible on payment of the Society's entrance fees.

Flowering Plants of South Africa.—The issue for April, 1924, includes illustrations and descriptions of ten plants, of which three are Nerines. Nerine Frithii, t. 132, is said to be a charming little plant, and the description states that the inflorescence forms an umbel of five to seven flowers, but the one illustrated has twelve blooms. They are a delicate shade of pink and the peduncles also are pink. Nerine lucida, t. 134, has a much larger flower, and this also is coloured pale pink and has a very short, stout peduncle. The other Nerine is N. flexuosa var. Sandersonii, t. 139, which is distinct from the type in having a more robust inflorescence. Sutera grandiflora, t. 131, has the appearance of making a good garden plant and the text states that the species should prove a great acquisition to horticulturists. It is a member of the Scrophulariaceae and has racemes of rather lax flowers. These are stated in the text to be deep purple, but the plate shows them a mauve-lavender. Protea Rouppelliae, t. 133, is a small tree from eight to fifteen feet high, with oblong, lanceolate foliage and shortly peduncled heads with silky-tomentose deep pink to pinky-white involucral bracts of a characteristic Protea-ceous appearance. Eulophia leontoglossa, t. 135, is a terrestrial Orchid found in the grass veld. The flowers are arranged in congested racemes or short heads. They are greenish-yellow and not very ornamental. Haemanthus Katharinae, t. 136, is an old plant in cultivation and was described by Baker in *Gard. Chron.*, 1877, Vol. 7, p. 656. Diplocyatha ciliata, t. 137, is a Stapelia-like plant with a very handsome flower, said to be devoid of the objectionable smell usually associated with members of the Stapelieae. The stem is obtusely four-angled, glabrous green and mottled with purple, stout and of a succulent nature. Urginea Burkei, t. 138, is a Liliaceous plant with a spiked inflorescence, something like that of an Ornithogalum. The star-like flowers are white with a brown keel. Ceropegia ampliata, t. 140, has a very curious inflorescence, the tips of the petals being connate and forming a cage-like top to the flower. The plant is a climber and devoid of leaves at the flowering period. The cylindrical blooms are pale green with a purple band within the corolla tube, which is visible through the wall of the tube.

The Fream Memorial Prize.—The Fream Memorial Prize, which is annually awarded by the Ministry of Agriculture and Fisheries to the candidate who obtains the highest marks in the examination for the National Diploma in Agriculture, has been won this year by Mr. Richard W. Thompson, a student of the Harper Adams Agricultural College. The value of the prize this year is about £7 10s., which is to be devoted to the purchase of books.

The Florists' Bibliography.—Possessors of this handy little guide to the literature of florists' flowers and the flower garden generally will be interested to know that a second supplement, bringing the work close up to date, is in the press and will be published almost immediately. Mr. Harman Payne, the compiler, has placed the distribution of it in the hands of Messrs. Wheldon and Wesley, Ltd., 2, 3 and 4, Arthur Street, W.C. 2.

Mr. Morley T. Dawe, F.L.S., F.R.G.S.—An expert in tropical agriculture, Mr. Dawe has for more than twenty years held important posts in the tropics in many parts of the world. On terminating his student days at Kew in 1902 he proceeded to Uganda as Officer-in-charge of the Botanical, Forestry and Scientific Department of the Protectorate. During his tenure of this office he initiated Coffee, Rubber and Cocoa planting on plantation lines, and also the system of Cotton planting amongst natives, which has since been so successful that Cotton is now the chief product of the country. In 1905 he undertook a tour through little known parts of Uganda, including the ascent of Mt. Ruwenzori, and added greatly to the botanical knowledge of this interesting and romantic country. The results of his journeys were published in a Blue Book (Cd. 2904), and in a paper in the Linnean Society's *Journal*, contributed by Dr. Stapf, entitled "Plantae Novae Daweanae in Ugandae lectae," in which are described 48 new species, including the representative of a new genus, Balsamocitrus Dawei. His discovery on the shores of Victoria Nyanza of extensive forests of Yellow-wood (Podocarpus) resulted in the working of these forests by the Government; whilst his finding the Lagos Silk Rubber tree (Funtumia elastica) in the Maibra forest led to the formation of a company to exploit this Rubber. During his term of service with the Uganda Administration Mr. Dawe visited Sudan and Egypt, and also Ceylon and India. From Ceylon he brought back large collections of economic plants which originated many of the Cacao, Rubber, and other plantations that exist in Uganda to-day. Mr. Dawe resigned in 1910 to take up an appointment as Director of Agriculture to the Mozambique Company in Portuguese East Africa. In Mozambique he managed the Government's extensive estates, controlled the grading of Maize, and did important work in connection with the local Rubber industry, whilst his collections of plants included several new species. Early in 1914 he resigned this appointment and proceeded to Brazil to take up a planting proposition, which, however, had to be abandoned on the outbreak of war. In 1915 he was appointed Agricultural Adviser to the Government of Colombia and took up his headquarters at Bagotá. Whilst in Colombia he undertook important expeditions in various parts of the Republic. In 1919 he left Colombia, and having visited Panama, the United States and the West Indies returned to England. In 1920 he was commissioned by the Colonial Office to report on the agricultural conditions and needs of the Gambia, West Africa. His report on the subject was published by the Government of the Gambia in 1921. On the conclusion of this mission Mr. Dawe proceeded to Angola, Portuguese West Africa, in the service of the Fomento Geral de Angola as Agricultural Adviser, to report on the agricultural possibilities and forest products of the country. Returning to England in 1922, he was appointed by the Colonial Office to the new post of Commissioner of Lands and Forests, Sierra Leone, which appointment he still holds. For the time being he is at Wembley as Exhibition Commissioner for Sierra Leone, and he is responsible for the very attractive display in the Sierra Leone Pavilion. During his travels in many lands Mr. Dawe has not only enriched the herbarium museums and gardens at Kew, but has also sent home a large number of the economic products for investigation, as a glance through the volumes of the *Bulletin* of the Imperial Institute will disclose. Generous and hospitable, Mr. Dawe has the knack of making friends in whatever country he happens to be in, and he is particularly successful in dealing with primitive peoples. In spite of over twenty years of hard work and arduous journeys in enervating tropical climates, and the consequent dangers to health which he has not altogether escaped, he still retains an abundant supply of energy and upholds his reputation as a man who gets work done. He presided at the Annual Dinner of the Kew Guild, on Wednesday last, and is the President of the Guild for the ensuing year.

MR. MORLEY T. DAWE, F.L.S., F.R.G.S.

Appointments for the Ensuing Week.—Tuesday, June 3.—Royal Caledonian Horticultural Society's meeting. Wednesday, June 4.—Royal Agricultural Society's Council meeting. Thursday, June 5.—Nottingham and Notts. Chrysanthemum Society's meeting. Friday, June 6.—Orchid Club's meeting. Saturday, June 7.—Darwen and District Agricultural Association's show; Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-Five Years Ago.—*The Potato.*—It is evident that the Potato is too precarious a crop to be relied on as a staple article of food. It must descend to the rank of a garden luxury; but what shall we substitute for it? How are the millions in these islands who have hitherto subsisted chiefly on that root to be fed without it? The answer is thus far obvious, that they must be fed either with imported food or with increased produce raised from our own soil by means of improved cultivation. That our own soil is capable, under an improved system, of yielding such an increased quantity of grain and animal food as would more than compensate for the loss of the Potato, may be treated as an admitted fact; and if that loss shall stimulate such improved cultivation, it may be hailed as one of the greatest blessings which could have been bestowed upon us. From the Potato have flowed the larger portions of those evils which are now desolating Ireland. The same evils would have resulted in England from the adoption of the Potato as the sole food of the labouring classes, a state of things to which we were rapidly tending. In England the evil has been arrested before it had reached its height by that mysterious visitation which baffles the skill and eludes the science of man, and by which a wise and good Providence is working out his designs. In Ireland the change, though good will ultimately arise from it, is attended with intense present suffering, aggravated and prolonged by the desperate fidelity with which the population of all classes cling to that treacherous root. *Gard. Chron., June* 2, 1849.

TREES AND SHRUBS.

ACTINIDIA KOLOMIKTA.

We are indebted to Mr. H. Honess, of Walhampton Gardens, Lymington, for the opportunity of illustrating the interesting Actinidia Kolomikta (Fig. 128), a slender, climbing plant, furnished with most decorative foliage. The foliage is pale purple when young, and later so much as half of some of the leaves assume a silvery-white variegation, and it is interesting that the variegation appears only on the upper surface, the under surface of the variegated portion of the leaf having the normal green colouring, though a shade paler than the rest. The degree of variegation varies according to the disposition of the foliage on the branch, and it is generally most pronounced on the leaves about the middle part of the shoot; the basal leaves may be quite normal in colour and those just above these put on a mere suspicion of tinting until a maximum amount is reached in the part stated.

Mr. Honess informs us that the specimen at Walhampton is planted on the south side of the mansion, and with the exception of a little judicious pruning of the weaker shoots in winter, receives very little attention, and never fails each spring to provide a great attraction to those who visit Lord St. Cyres interesting gardens.

Mr. Honess informs us that the plant this season appears to be extra robust, and the foliage better coloured than usual. The species is a native of Manchuria, China and Japan. The specimens sent by Mr. Honess were in flower, the blossoms being produced in the axils of the leaves in groups of two and three; the petals are white. The flowers are fragrant, but they have no claims to beauty. Mr. W. J. Bean, in *Trees and Shrubs Hardy in the British Isles*, states that Actinidia Kolomikta is the weakest grower of all the Actinidias, and requires stout stakes as supports. It is a distinct and uncommon plant, and may be recommended for training on a warm, sunny wall, where a variety of climbing plants is required.

SALIX PRUINOSA.

This Willow has a number of names, including S. acutifolia, S. violacea, S. caspica, S. nigra, S. daphnoides angustifolia and S. d. acutifolia. Wimmer, in *Salices Europaeae*, enumerates a number of characters by which he thinks it differs so widely from S. daphnoides as to be considered a distinct species. There is a large, but young bush of this in the gardens of the Royal Horticultural Society, Wisley, which shows the general features of the differences. It grew very quickly into the form of a bush, without any tendency to become a tree. The twigs are of remarkable length, slender and inclined to droop. These twigs are thinly furnished with catkins; sometimes the twigs bear only one catkin each. The catkins are only about an inch in length but often two-thirds as wide, and densely covered with long hairs, which gives them a shaggy appearance. As the catkins appear in early March, sometimes in February, it is hopeless to plant this species anywhere to which the public has access, unless constantly guarded, because the whole bush gets broken down till not a catkin is left. The species is highly ornamental in summer by reason of the long and slender leaves, and the richly Primrose-coloured bark; in winter by the reddish, chestnut, or blackish-violet bark; and in early spring by the large catkins. *J. F.*

LONICERA NITIDA.

This neat-growing evergreen is comparatively rare in gardens, but there is no doubt it will be planted largely in the future, especially for use as a hedge plant.

Some time since when in the nursery of Messrs. Wood and Ingram, Huntingdon, I saw several hedges of this plant enclosing plantations of various nursery stocks, and Mr. Elliott the foreman predicted that Lonicera nitida would in time supersede the familiar green Privet for this purpose. Mr. Elliott's opinion is warranted owing to the superior appearance of the Honeysuckle, both in foliage and style of growth, added to which, I understand, the plant is absolutely hardy and may be cut back to any height or shape, if necessary, with no ill results.

Being evergreen, compact and quick-growing, it makes a first-class hedge plant, useful alike as a wind-screen or a dividing line between any plantings of other subjects.

Where watering and syringing could be carried out, planting of small specimens would have every prospect of success if done now. *C. Turner.*

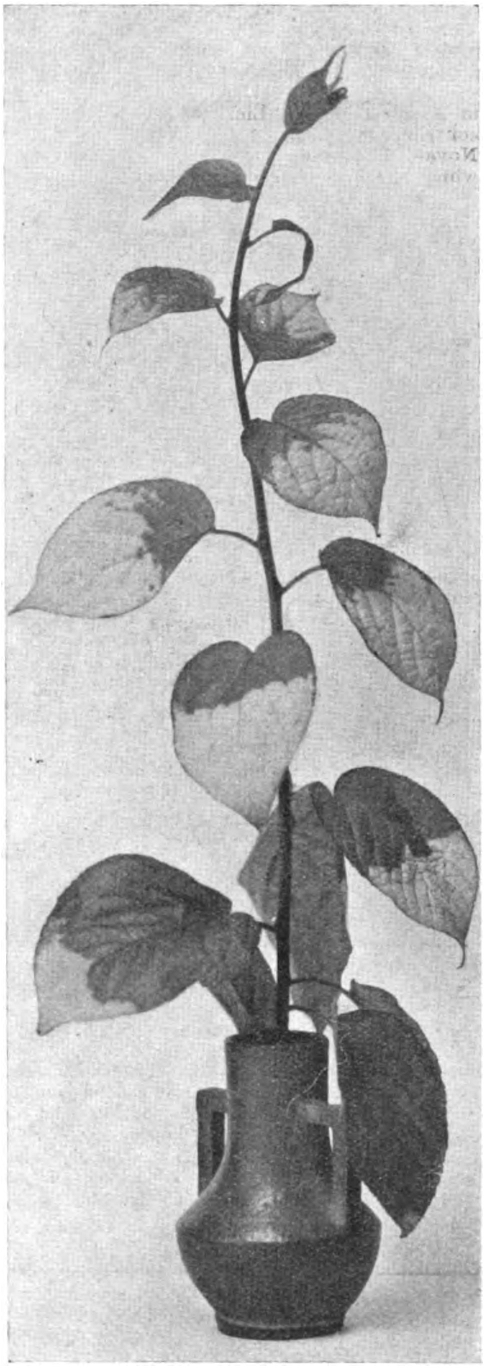

FIG. 128.—ACTINIDIA KOLOMIKTA.

PUBLIC PARKS AND GARDENS.

SPRING BEDDING AT HYDE PARK.

The winding, gently-sloping, shrub-backed border in Hyde Park, near the Victoria Gate, is very beautiful just now with a wealth of spring flowers other than bulbs. This fine border is about one-hundred-and-fifty yards long and varies from six feet to fourteen feet in width; last summer it was wholly furnished with Dahlias and when the spring flowers are over it is intended to replant the border again with Dahlias in early June.

A great diversity of plants are employed and they are used in bold masses that gradually merge into each other without any strict line of division between them, so that the effect is more natural and additionally charming.

Commencing from the Lancaster Gate end are giant-flowered Daisies, including a fine white variety, and the rosy-crimson Etna; Wallflower Primrose Monarch, which is a decided improvement on the older Primrose Dame; and White Intermediate Stocks, these being all singles, as the double-flowered plants are utilised in beds elsewhere where a more prolonged effect is desired. A very pretty combination is seen in the association of white Daisies with Cheiranthus Allionii, the rich orange colour of the latter flower being most attractive in the many positions in which it is utilised. The blue Myosotis and winter-flowering Pansies in a variety of colours, are very pleasing and popular with the general public, the finest of the Pansies being obtained from a sowing made early in July. A group of Daphne Cneorum makes an uncommon feature and merits much appreciation from the public. Purple Aubrietia with Pyrethrum James Kelway as a background, gives a splendid patch of colour.

Other fine colouring is provided by plants of the mauve Viola Maggie Mott, pink Daisies, Iberis sempervirens with a background of Wallflower Vulcan; the Spetchley strain of Polyanthus, in the remarkable range of self and blended colours found in this large-flowered type and the dainty Silene rosea compacta. In the background is planted Paeonia albiflora grandiflora, a very beautiful plant which is deserving of more general use in cultivation; the pure white, single flowers with their centres of golden stamens, are very charming, and provide excellent material for floral decoration, even the smallest buds on the weaker shoots opening well when cut and placed in water. Fronting these Paeonies are the purple and lavender-blotched Pansies, Beaconsfield and Magpie, and here again are broad patches of Cheiranthus Allionii and giant double-white Daisies, with red and white Pyrethrums behind them. Other flowers contributing to the gaiety of the scene are double rose-coloured Stocks, Doronicums, blue Myosotis and bronze Pansies as a fronting to Wallflower Cloth of Gold. The association of Echium plantagineum with white Marguerites is very effective. Pansy Trimardeau, with white flowers that have a black eye, near to a large, densely planted mass of yellow and white Polyanthuses, also attracted my notice, as did a fine breadth of mixed winter-flowering Pansies.

It is difficult to estimate the number of plants which have been employed in this border, but the total is probably some twelve thousand to fifteen thousand, and the effect is best seen from about the centre of the bend.

In another part of Hyde Park I noticed a fine mass of Cheiranthus Allionii associated with Buxton Blue Viola, which is the bluest of all Violas, and the combination of the two colours was very striking. Mr. Thomas Hay, the superintendent, is to be congratulated on the success of this beautiful border, which shows originality both in design and planting.

The flower walk in Kensington Gardens has recently been re-modelled by Mr. Hay and made even more beautiful than ever. All interested in horticulture would be well repaid by a visit during the next week or two to inspect this gay flower border in London's most important park. *Vernalis.*

The Week's Work.

THE ORCHID HOUSE.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Catton Park, Reigate.

Anguloa.—Many of the Anguloas are making new growths and sending up flower spikes. They include A. Clowesii, A. Ruckeri, and the chaste A. Cliftonii. Any necessary re-potting must be deferred until the flowers are cut; those not flowering may be attended to forthwith. Anguloas are strong-rooting plants and require a rather retentive compost, consisting of one part its bulk of good fibrous loam added to the usual mixture of Osmunda fibre and Sphagnum moss, with sufficient crushed crocks to render the mixture porous. Fill the pot one-third its depth with clean potsherds, and place a layer of rough compost over the top of these. Remove all unnecessary back pseudo-bulbs, reduce the ball of soil and cut away dead roots. Pack the compost firmly around each plant and leave sufficient space for watering. The plants thrive in a shady part of the intermediate house or at the warmer end of the cool division. Water the roots sparingly for a time after re-potting and take care that moisture does not accumulate in the young shoots. When the pots are well filled with roots the latter will require liberal supplies of water until the pseudo-bulbs are fully matured, when the plants should be afforded a long season of rest.

THE FLOWER GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Summer Bedding.—Although in favoured districts many of the summer bedding plants will already be in position, the planting of the more tender subjects can hardly be risked until early June. The sooner these are placed in their flowering quarters after this date, however, the better, and such plants as Abutilons, Ageratums, Begonias, Cannas, Heliotropes, Coleus, Nicotianas, Petunias, Plumbagos, Salvias, Solanums, Ricinus, Zinnias, and many others may now be safely put out-of-doors. The association of Zonal Pelargoniums and Marguerites is still extensively adopted, and has the advantage of providing long-continued brightness, but in large gardens this type of bedding is restricted to narrow limits, and the gardener has to be a floral artist and produce exquisite effects in great variety to harmonize with the surrounding features. For this purpose a great variety of more or less tender plants is grown and the gardener concentrates on the blending or contrasting of colours, on the breaking of straight lines and relieving flat surfaces, rather than on the production of formal beds of uniform growth, however brilliant they may be. Many pleasing effects may be obtained by using grey-foliage plants, such as Artemisia judaica, Gnaphalium microphyllum, Helichrysum rupestre, Senecio leucostachys, etc., as dot plants, or in large schemes standard plants of different varieties and different heights may be grown for this purpose.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Melons.—Melons that are ripe or approaching that stage should be given an abundance of warm, dry air on every favourable opportunity. The atmosphere of the house should be kept drier to obtain high finish and rich flavour in the fruits, which should be cut before they part from the stem. When gathered they should be stored for several days in a dry, warm room with an even temperature. With the warmer weather later plants are making excellent progress in their various stages of growth. The fruits should be supported in good time by nets, allowing sufficient room for them to expand by tying the net loosely under them. Plants growing in frames should be encouraged to make active growth by closing the frames early in the afternoons. Pinch and regulate the growths as it becomes necessary to do so.

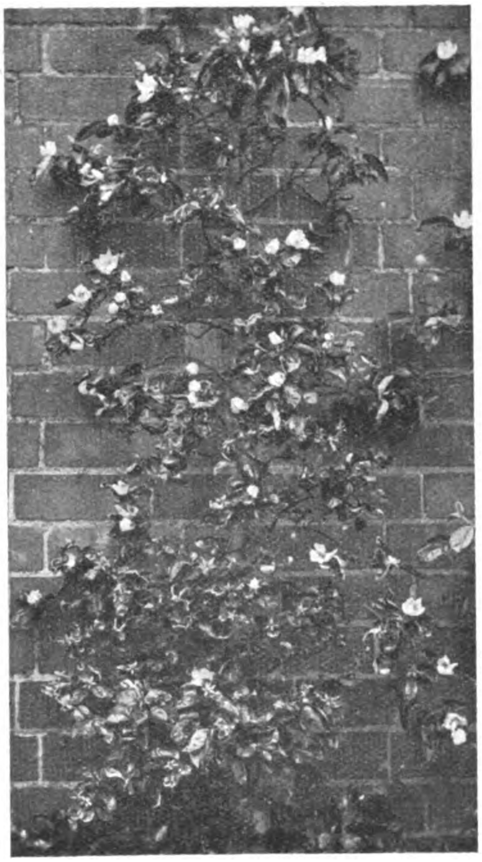

FIG. 129.—QUINCE CHAMPION, TREATED BY LEAF-TIME PRUNING.

Tomatos.—Tomato plants that are fruiting heavily should be given a top dressing of some rich material to assist them to finish their crop successfully. Keep axillary growths growths pinched out as they appear. The house in which the plants are growing should be ventilated freely whenever the outside conditions will allow. Plants intended for fruiting later should be potted on or planted out in borders. Those intended to be grown in pots should only have their receptacles half filled in the first instance to allow for frequent top dressings of soil when the crop is swelling freely.

PLANTS UNDER GLASS.

By F. J. CLARK, Gardener to Lt.-Col. SIR GEORGE HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Chrysanthemums.—The main batch of Chrysanthemum plants should now be ready for transference to pots in which they will flower. The receptacles should be 8 inches, 9 inches, and 10 inches in diameter; the weaker growing varieties will do better in the smaller sized pots, whilst the stronger varieties will need the larger sizes. The pots should be well drained, with a liberal sprinkling of half-inch bones over the crocks, covering this with a layer of broken turf from which the fine soil has been shaken; these materials will form a good rooting medium and will ensure perfect drainage, which is most essential. A compost comprising a greater proportion of loam than was used at the last potting should be employed, viz., 12 barrow loads of loam, used in a rougher state than before, with the fine particles sifted out, 2½ loads of leaf-mould, 2½ loads of old hot-bed manure, 1 load of coarse silver sand, 2 bushels of crushed charcoal, and 1 bushel of coarse grade, crushed oyster shell. To each barrow load of soil add one six-inch potful of bone meal, one 3½-inch potful of soot, and one 3½-inch potful of Clay's Fertilizer or Le Fruitier. Firm potting is necessary to ensure good, solid, short-jointed growth, which is essential to the production of good flowers.

HARDY FRUIT GARDEN.

By R. W. THATCHER, Gardener to MARK FIRTH, Esq., Carlton Park, Market Harborough, Leicestershire.

Grass Orchards.—Unless the grass in fruit orchards is required for hay it should be kept mown with the scythe, and a large circle under each tree kept perfectly free from weeds, and hoed constantly to promote a friable surface, and to prevent the soil cracking in dry weather. A liberal mulch of well-decayed manure will greatly assist the trees if they are carrying heavy crops. Orchard trees are often allowed to become too thickly furnished with branches, thus preventing the air from entering the centre of the trees freely. When the trees are in leaf is a good time to examine them in this respect, and mark any that it is desirable to remove in the autumn. An ideal orchard is one planted with half-standard and open bush trees in preference to tall standards, as the fruit of such trees may be gathered with little trouble, and is not so liable to be detached by strong winds.

Figs.—Wall Fig trees should be attended to in the matter of tying in the young shoots, and removing any that are liable to become crowded. If the roots are growing in a restricted area they will require feeding, and nothing is better than well-diluted farmyard liquid manure. A good mulch of half-decayed manure will be of benefit to the trees if the summer proves hot and dry.

THE KITCHEN GARDEN.

By WALTER Y. STAWARD Gardener to MRS. JOHN FEENEY, The Moat, Berkswell, Warwickshire.

Tomatos.—Outdoor Tomatos should now be planted in their fruiting quarters in a sunny position. Make the ground fairly firm by treading; if it is too loose the plants will grow quickly and make too much foliage and few fruit trusses. An occasional dressing of superphosphate of lime will help to build sturdy plants.

Maize.—Where "Corn Cobs" are in demand in the autumn, Maize may be sown now in rows made three feet apart. The seedlings should be thinned to eighteen inches or one foot in the rows. A sunny position and rich soil are necessary for the success of this crop. Dusting the soil with a concentrated fertiliser from time to time will be beneficial.

Broad Beans.—A final sowing of Broad Beans may be made now to form a succession. Plenty of time is necessary for the plants to develop good pods. Stiff ground suits this crop best.

Khol Rabi.—The seedlings are ready for planting out in the same way as for Cabbage. Do not plant the bulbs deeply in the ground. Sow more seeds and transplant the seedlings when they are large enough to handle. The plants from this sowing will make nice bulbs by the autumn.

Dwarf Beans.—Make a liberal sowing of Dwarf Beans on a south border. Allow plenty of room between the rows and thin the plants liberally.

LEAF-TIME PRUNING.

(*Concluded from p. 309.*)

Of course, where but little further extension is allowable, somewhat more vigorous interference may be practised; this is especially the case on centrally placed branches of which no further extension is desired; here, if there is a number of shoots, all may be cut back, say to the fourth leaf, or entirely removed with the exception of the weakest one, which is left as a safety valve. Such treatment also tends to throw sap back towards the basal parts of the tree and aids in preventing basal denudation, a feature so commonly seen in trained trees.

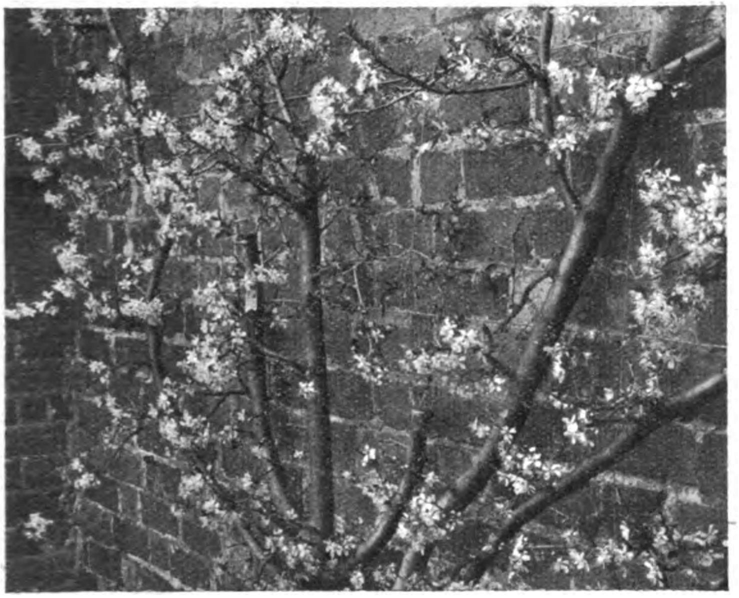

FIG. 130.—PLUM BLACK DIAMOND TREATED BY THE FOUR-LEAF, ONE-LEAF METHOD.

In order to avoid the tendency to basal denudation of the whole tree, it is important to deal with the laterals of the upper parts some week or ten days before the lower half or lower two-thirds of the tree; by so doing it is possible to get plenty of fruit, *e.g.*, on the lowest branches of a fan-trained Red Currant or Morello Cherry.

A small pair of secateurs of no great weight or strength is useful for this work. Provided that shoots needed for extensions are marked, the general pruning may be left in quite unskilled hands, and only questions of these and points where clearances of old wood are indicated, need be left to the higher grade artist.

The first pruning of Red Currants will take place some time in June, according to season and site. The final pruning will be in August when the fruit is either ripe or would be ready for picking if not already picked when green; (green Red Currants make excellent tarts and jam, and can be bottled.)

The first pruning of Gooseberries will be about the same time as for Red Currants, as also the second pruning; it may be noted that the rule for the site of cut at the second pruning is very simple, as it becomes resolved into "cut below the first thorn." The pruner may test his work by closing his eyes and passing his hands about the bush, where there should be no thorns except on extension shoots.

Illustrations both of the Red Currant and the Gooseberry after two years' treatment are figured in the *Royal Horticultural Society's Journal*, xliii., Figs. 43 and 44, opposite page 269; similar photographs could have been taken in succeeding years.

A specimen of a Morello Cherry in its eighth year of treatment is seen in Fig. 131; it will be noted that blossom is well distributed all over the tree. The first pruning is done rather earlier, though about the same time as for the Plum; occasionally some old wood has to be cleared out. Though the tips of young growth occasionally have been infested with black aphis, I have not yet seen these on the old leaves hardened and enlarged by the shoot stoppage. Generally speaking a winter wash with lime polysulphide (lime-sulphur) is the only washing that it has had.

The Plum tree shown in Fig. 130, had had five years' treatment when the photograph was taken, and is one of the Black Diamond variety. There is a tendency for the formation of permanent blossom spurs known as *Bouquets de Mai.* Owing to its early blossoming this variety rarely sets much fruit and has been moved to an east wall; a Coe's Golden Drop with similar length of treatment has been more satisfactory in this respect. Specimens of Jefferson and Angelina Burdett have had fewer seasons under treatment; the latter is young and is being trained as well.

QUINCE METHOD.

A cordon or column trained Champion Quince is shown in Fig. 129. Quinces are not very commonly trained upon walls, and in the more usual form of standards the trees are hardly amenable to any intensive method of pruning. The photograph was taken on a calm, bright day before the blossoms were fully out, but from the buds that are visible it will be seen that the flowering was very free. This tree and one on either side, have also had eight seasons' treatment. In the case of the Quince, the pruning is somewhat different to that already described. The side shoots are cut back to one or at most two good leaves at once when the basal parts have become thoroughly woody; secondary growths are removed completely — that is to say to the leaf of origin — when they, too, have become fairly woody, unless they happen to cause too much interference with light and air at an earlier date. So far I have not been able to get blossoms lower than about four feet from the ground. The system was first tried upon a Cydonia japonica, irregularly trained on a wall, and the nests of blossom were so freely developed that similar treatment was given to the more definitely fruiting varieties. Largely owing to severe infestation with white mildew, a final clean up has usually been given before the fall of the leaf, by removing all immature shoots, for these seem to be very susceptible in the cold spring weather.

The Peach and Nectarine have not been experimented upon, but it seems not unlikely that a similar treatment to that given to the Morello Cherry might give good results; some half-hearted attempts have been made on an oldish Apricot on the same lines, but it so often happens that whole branches die back that now I generally leave the tree to take care of itself. *H. E. Durham.*

APPLES OF HIGH QUALITY.

There are a few varieties of Apples which to my mind are equal to Cox's Orange Pippin in flavour, especially when grown on the Crab stock. Of these Wyken Pippin, which was sold in the London markets forty years ago as Golden Pippin, is an Apple of very high quality and should find a place in every garden. The fruit is small, oval in shape, flattened at the end and coloured yellow, dotted with brown. The flesh is yellowish, crisp and juicy, and has a rich flavour.

Margil is another excellent Apple of high quality. The fruit is rather small, but of a size suitable for dessert. It is egg-shaped or nearly so, with a small eye and angular contour. The colour of the skin is light russet, tinged with red on the side next to the sun. The flesh is firm, yellow, juicy and very sweet.

King's Acre Pippin is a somewhat large variety for dessert, but it is of special merit as regards flavour. The colour is green with russet and red shadings on the side next to the sun. Small fruits obtained from the north and east sides of the tree may be easily confused with Sturmer Pippin. *Pomona.*

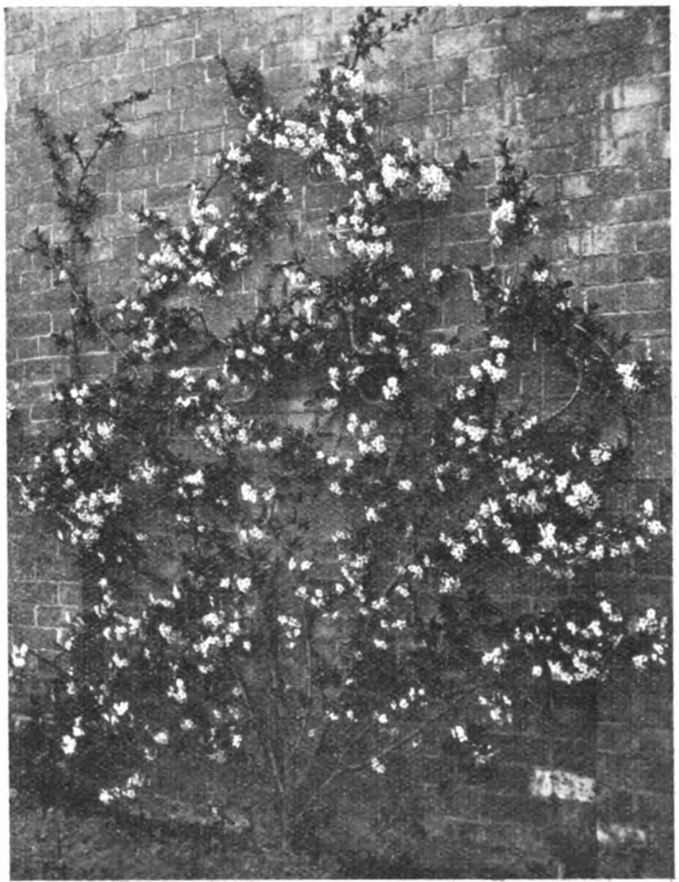

FIG. 131.—MORELLO CHERRY TREATED BY THE FOUR-LEAF, ONE-LEAF METHOD.

BULB GARDEN.

DOUBLE POET'S DAFFODILS.

THE illustration and description of Narcissus Daphne on page 273 reminded me that there are now three double varieties of the Poet's Narcissus. The oldest, perhaps, and best known, is Narcissus poeticus recurvus plenus, generally called the Gardenia-flowered Narcissus, which blooms in May and as late as June in some parts of Scotland. The single form of this, fairly widely known as the Pheasant's Eye, also flowers late. A fine coloured plate of this was issued in *Gard. Chron.*, October 16, 1880, under the name of the Poet's Narcissus. The segments of the perianth are reflexed and more or less incurved at the edges. The leaves are also reflexed above the middle as a rule. Haworth described this form as a species. Salisbury named N. patellaris as a species, and a plate of it appears in *English Botany*, 2nd ed., pl. 469, under the name of Narcissus poeticus. The segments of this variety are broad, overlapping and flat. The crown is widely expanded and has a narrow, white zone between the lemon and the saffron. This old variety has recently been discovered in a Kent garden. In the early eighties of last century I saw the double form of this in Kew Gardens, under the name of N. poeticus patellaris plenus. During the first half of last century the single forms of the last two were still regarded as species, and were treated as such by a writer recently in the *Journal of Botany*. N. poeticus Daphne makes the third double form. *J. F.*

HARDY FLOWER BORDER.

ACONITUMS (MONKSHOOD).

THESE handsome, late-flowering plants are worthy of more extended cultivation, as blue flowers are most welcome in autumn when there is apt to be a super-abundance of yellow blooms. They may be planted in the herbaceous border, in shrubberies, on the banks of streams, in woods, and also in the drier parts of the bog garden. In rich soil they should be dug up, divided, and replanted every second year. They are excellent subjects for a north border, indeed a border entirely devoted to Aconitums is very attractive, especially if in a partially shaded position. Good blue sorts are A. autumnale, A. chinensis, A. rostratum coeruleum, and A. Wilsonii; purples, A. Fischeri, A. paniculatum, A. septentrionale, and Spark's variety. The roots of the Aconitum are poisonous. *C. Ruse.*

DORONICUMS.

THE hardy, free-growing Doronicums produce bright yellow flowers early in May, and for a bold mass of yellow even the Daffodil cannot surpass the glittering effect of a wide expanse of Leopard's Banes.

The plants are very old in cultivation, very hardy, and of very easy culture. They are not at all particular as to soil, and will grow both under trees and in exposed situations. Their effect in a mass is greater than is their individual beauty, and hence they show to advantage in large clumps and broad lines.

These Composite flowers are increased readily by root division. They may be removed with balls of earth so soon as they have finished blooming, and replanted in their flowering quarters in autumn or very early in the spring.

The Doronicums are the brightest hardy spring-flowering plants we possess, and, being in perfection at the period when Aubrietias, Arabis, Hepaticas and Polyanthuses are in flower, enhances their usefulness.

When the plants have done blooming, north or partially shaded borders are good positions in which to increase and prepare them in summer, whence they can be transferred to their blooming sites when the beds or borders are cleared of their summer occupants in the autumn. Patches or lines of Doronicums in shrubbery borders will, if left undisturbed, continue to bloom freely for many years. *James A. Paice.*

ALPINE GARDEN.

RAMONDIA PYRENAICA.

IT is a little surprising to find how frequently Ramondia pyrenaica fails with some growers. One of the keenest and most successful cultivators of alpine flowers whom I ever knew came to my former garden several times to see my Ramondias, confessing with regret that he was never able to succeed with them.

There is no secret formula for their cultivation. I do not even find them very particular in respect to soil, as I have grown them as well in ordinary light garden soil and just as satisfactorily as in loam, peat, or leaf-mound and sand. But the chief requisites appear to be a fairly moist root-run and shelter from sun. I think that these plants do not like a overhead drip, whereas Haberleas do not appear to trouble about drip from shrubs above them.

Drought is a great source of disaster to Ramondias. I remember trying them on the north slope of a low, rather dry rockwork, and if they were left unwatered for a few days in a time of continued drought they suffered severely. Sometimes the outer leaves became quite shrivelled under these conditions, but the young foliage in the centre would push out after watering and furnish the plant with leaves. But this cannot be expected to be a continuous process without serious detriment to the well-being of the plant, and in course of time, especially if absence from home causes unavoidable prolonged neglect, the mischief may be beyond repair, and the plants lost. Even shade, though it may ameliorate the trouble, will not suffice, and due care should be taken that moisture at the root is available.

Shade from sun is almost absolutely necessary, but I have seen plants of R. pyrenaica wonderfully good in sun, but they had plenty of moisture at the roots and were syringed almost daily in dry weather—an attention not always possible.

Nowhere does the Ramondia appear so healthy and so happy as in the crevices of almost vertical rockwork facing north, or a wall garden with a similar exposure and with plenty of moisture at the roots. With these conditions there is little fear of success with this attractive old plant, whose wrinkled leaves and soft blue, yellow-centred blooms are so much enjoyed. *S. Arnott.*

IRIS TENAX.

THIS beautiful Californian species is an admirable plant for a moist spot in the rock garden. The medium-sized flowers, varying in colour from crimson to lavender, are borne on slender stems, and their beauty is greatly accentuated by the elegant grass-like foliage. The plant thrives in a deep and cool loam and soon spreads into considerable patches; the flowers are persistent, produced in May and June, and are very lovely for decorative purposes. This, quite one of the best of the smaller Irises for garden decoration, is more or less evergreen.

PAPAVER PILOSA.

OF exceedingly free growth this Poppy is never a nuisance and may be safely introduced into the mixed border or into the higher parts of a large rock-garden.

It is an excellent dry-weather plant, and produces flowers of an apricot colour in profusion throughout the summer and autumn.

It is a true perennial. Seeds offer the best method of propagation. *Ralph E. Arnold.*

HOME CORRESPONDENCE.

Change of Colour in Sweet Williams.—I have just been told that roots of Sweet William—which had flowered freely and the flowers were red—were divided and replanted, and the divided plants gave red and white flowers. Is this of common occurrence with this species? Or is it possibly due to an error of observation and seedlings were mistaken for the divided plants? *C. Nicholson, Hale End, Chingford.*

Young Lads and Horticulture.—One reads of many old-time, large gardens and estates which have been severely curtailed or given up; and the present want of stability and future security does not point to great confidence. Surely the best advice is to try one or other of the Colonies. Another factor against the young lad is the shortened system of hours whereby the opportunity for learning is reduced. The writer wonders whether he would not now be on the parish if his working hours in laboratory and library had been limited to eight per day! One contributor has expressed regret that he indulged in "science" in his training; but what does he mean by science, an oft mis-used word, under which much is included that is not even quasi-science! I take it that the gardener should know the reason for things, why such and such is done, and why such and such should not be done; and where fact and theory combined are irrefutable, we enter into the threshold of science. *H. E. D.*

—— Regarding the letter published in your issue of May 3, I consider there is nothing more detrimental to young lads than the sort of bullying head gardener your correspondent mentions. In my experience of gardening I have served under nine gardeners, eight of whom possessed the art of controlling men: the ninth may have been the one your correspondent mentions, as his description appears to fit the situation. I was foolish enough to remain with him for twelve months and by that time I certainly began to think I knew nothing about gardening! *F. R. N.*

Cerasus "Ofokin."—I was much interested to read in your issue of the 17th inst. that Award of Merit was granted by the R.H.S. to Mr. R. C. Notcutt for an exhibit of Cerasus serrulata var. Ojochin. When Messrs. Veitch's collection at the Coombe Wood Nursery was sold in 1914 and 1915, I purchased a young shrub—one of a miscellaneous lot—labelled "Cerasus Ofokin." It was then about two-and-a-half feet high, and as I could not trace the variety in any of my works of reference, it was not given a very prominent place in the shrubbery. It has developed into a handsome tree, now quite nine feet high and four to five feet through, of very free growth, flowering abundantly every year. It has been left severely alone as regards the knife. The flowers are much larger than those of C. serrulata and of a slightly different form, pure white and single or, at least, only semi-double. As I write, the tree is a glorious sight and is one of the very best of the flowering Cherries. My object in writing is to enquire whether you can inform me as to whom we are indebted for the introduction of this fine variety, and its source, which is, presumably, Japan. Is the variety common in gardens? *Frank Copeman.*

The Late Mr. Brian Wynne.—Just a word in appreciation of the late Mr. Brian Wynne, particulars of whose career are given on page 280. I made his acquaintance in the middle sixties when he was engaged on the staff of the *Gardeners' Chronicle*. I may add that I learnt much from him and would write more about him, but am prevented by personal affliction. *W. Botting Hemsley, Broadstairs.*

NOTES FROM GLASNEVIN.

Orchids.

Orchids continue in good flower and among others Maxillaria Fletcheriania (Fig. 132), has recently bloomed well. The pseudobulbs are compressed, bearing a solitary leaf at the apex, two others arising from the base and sheathing it. The solitary flowers are borne on erect scapes which are clothed with green bracts. The outer segments of the perianth are white, veined with reddish-brown, the two lateral ones conniving at the base of the labellum; the inner segments are narrower, pointing forward over the column; the lip, which appears hinged to the outer segments, has a tongue-like appendage in the throat. Phaius Norman is of considerable interest and beauty. The pseudobulb is almost cylindrical, the large leaves two feet in length and three inches wide, strongly ribbed; the flowers are produced in an erect spike, subtended by bracts which soon fall off; the segments are acute, of a pale salmon colour; lip highly developed, recurved, the margin much undulated, ground colour lilac-stained and mottled reddish-brown with a deep yellow median line and numerous subsidiary lines of the same colour.

Cattleya Harrisoniae × Laelio-Cattleya Canhamiana is an excellent hybrid purchased from Messrs. Cowan some years ago, and which has never received a distinctive name. For two or three weeks it was one of the most attractive plants in the Glasnevin collection. The sepals and petals (segments) are of good substance, white tinged violet, while the lip, which is beautifully formed and fringed, is also white but with a deep violet blotch passing down the throat. Many other interesting genera and species contribute to the interest of the Orchid collection, particularly Masdevallias, of which M. Chimaera in several forms, M. Hincksiana, M. radiosa, M. Chestertonii and numerous varieties of M. ignea are noteworthy. Miltonias are also in good flower, upwards of a dozen plants being in bloom, including M. Charlesworthii, M. Roezlii, M. Bleuana and M. vexillaria rosea.

Greenhouse Plants.

Clematis florida bicolor is a useful greenhouse climber, flowering freely on growths of the previous year; the white sepals contrast well with the purple staminodes, the general effect of a well grown plant being exceptionally good. Cuttings of this variety strike fairly easily. Grevillea ornithopoda is another greenhouse climber of more than ordinary merit. The slender branches are pendulous, bearing cuneate leaves tapering to the base and toothed at the apex. The small white flowers are freely produced from the axils of the leaves. This species can be grown as a pot plant but it is more suitably placed when used to clothe a pillar, or trained to the main rafters of a greenhouse.

Indoor Rhododendrons have flowered remarkably well this year, three of the latest to come into bloom being R. burmanicum, R. Cuffeanum and R. Dalhousiae Victorianum. The two first-named, of comparatively recent introduction, have been alluded to before in *Gard. Chron.*; R. burmanicum bears greenish-white flowers in trusses of five to six together and is more attractive than the colour description might suggest; R. Cuffeanum, however, is a more desirable species in every respect although much more sparingly branched and without the well-furnished appearance usually associated with a cultivated plant. The flowers are much larger than those of R. burmanicum and borne in a looser cluster; they are white with a tinge of yellow inside the tube above the stamens, and exhale a delicious fragrance. R. Dalhousiae Victorianum, although much longer known than the two former, is not often met with; it is, as a matter of fact, a garden hybrid between R. Dalhousiae and R. Nuttallii, raised in Belgium by M Victor Cavelier, and figured in *Flore des Serres*, tt. 2466-67 (1880). The Glasnevin plant was purchased in Belgium many years ago by Sir Frederick Moore. The leaves are intermediate between those of the parents, the flowers, produced three to five in a cluster, are large with the lobes of the corolla much recurved, creamy-white deepening to yellow in the tube, and delightfully sweet-scented.

Trees and Shrubs.

In the open trees and shrubs are now conspicuous especially in the genera Pyrus and Prunus. Of the former, in addition to the older species and varieties usually met with in collections, some of the newer hybrids are remarkable on account of the more striking colour of their flowers, notably Pyrus aldenhamensis, P. Eleyi and P. purpurea, all of which have inherited to a great degree the intense colour which permeates the flowers and wood of P. Niedzwetzkyana. Pyrus Sargentii, P. sikkimensis, P. orthocarpa and P. Zumi all have white or pink tinted flowers and make a pretty picture when in bloom.

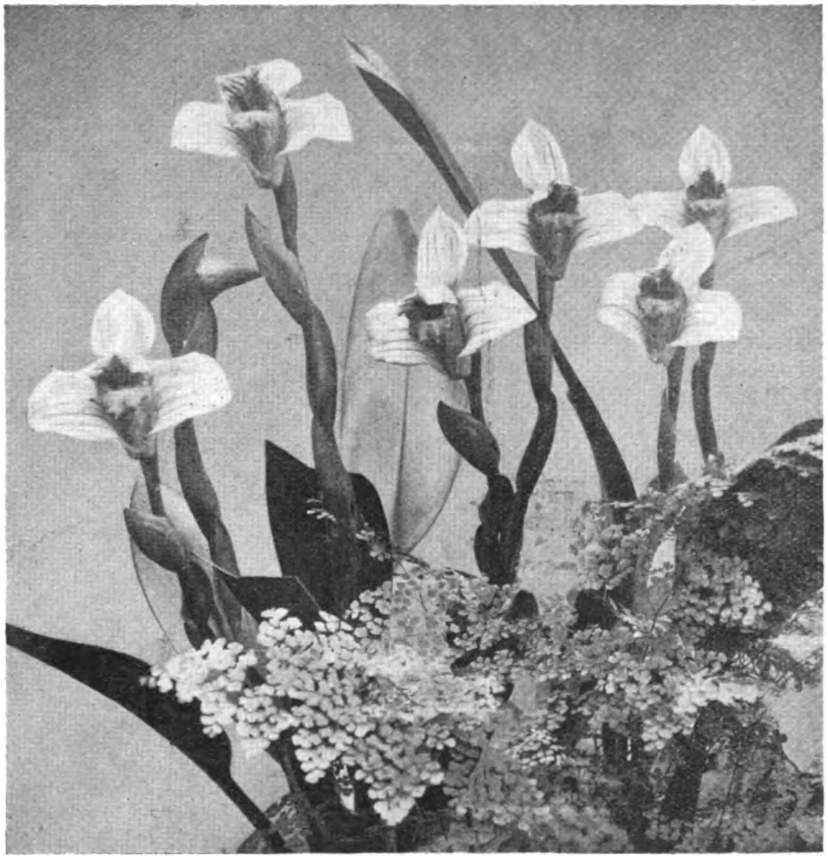

FIG. 132.—MAXILLARIA FLETCHERIANA.

Of the Prunuses now flowering in mid-May by far the most striking are the more or less double forms of Prunus serrulata. Numerous specimens of these planted about the grounds some years ago have grown rapidly and flower annually in profusion. The flowers are pale pink to deep rose, varying a little according to the variety, those grown here including flore roseo pleno, Veitchiana, Troaiaya and a richly coloured variety acquired from Messrs. Barbier as "New Red." The double variety of the common Gean, P. Avium flore pleno, is not by any means eclipsed and will remain for long one of our most delightful flowering trees.

Rhododendrons in bloom are increasing in number daily; conspicuous among others are the magnificent hybrids R. Loderi Patience, and Pretty Polly. The flowers are exceptionally large, deep rose-pink in the bud stage, becoming almost white when fully expanded. R. yunnanense is in fine bloom also, an old plant being literally covered with flowers, scarcely a leaf showing. This plant has been in cultivation here for many years and is the form originally distributed from the Paris Botanic Gardens. The flowers are white with a few pale yellow dots; in specimens of later introduction the dots are red, otherwise the flowers and habit of the several forms are similar. R. Davidsonianum, R. chartophyllum and R. charianthum are all decorative species of the yunnanense series.

Moraea spathacea.

For more than a month one of our most striking plants has been a form of Moraea spathacea, which we call Elwes' variety, as it came to this garden from the late H. J. Elwes, to whom many gardens owe so much. Planted first in a narrow border in front of the Orchid house it grew and increased, flowering freely and producing seeds. Planted in the rock garden some three years ago it has grown into a strong clump bearing now a dozen fine spikes each with one or two large flowers. The flowering season is a long one, for though individual flowers are not of long duration they are produced in succession from the lower spathes. In general appearance much like an Iris, Moraea differs in the perianth rising directly from the ovary. In the present species (Fig. 133) the flowers are clear yellow except for a pale yellow blotch on the falls at a point where the broad limb narrows to the haft. The leaves, three to four feet long, are of a glaucous colour and conspicuously veined, some at least persisting through the winter. Although a native of South Africa this species seems quite hardy. *J. W. Besant.*

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Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

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Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

GARDEN-CRAFT IN THE CANTICLES.—I.

THE "Song of Songs which is Solomon's" has been treated from every point of view, save one, viz., that of the gardener. The mystic and moralist, the preacher and poet, the philologist and the dramatist, each has expatiated on its beauties and meaning. From it the orator has drawn his texts, and the divine his inspiration. It has been shown to contain every conceivable and inconceivable mystery, and it has been interpreted spiritually, symbolically or naturally, as the mood of the student suggested; but no one has ever seen in it the gardeners' lyric. This is probably due in great measure to the fact that only a limited number of writers combine all the necessary requirements. To do justice to the theme one should have some knowledge of the East, its languages and its plant lore, as well as its poetry and modes of thought. Tristram and Ellacombe might have performed the task had it occurred to them, but many students possessed of the linguistic equipment lack the nature-lore. The papers which are now proposed are an attempt to make good the omission and put the gardener in touch with the "Song of Solomon." It is of interest to study, in the first place, the various words employed by the poet which show his familiarity with the parterre—such as orchard, garden, vineyard, valley of fruits, fountains, fishpools and pavilions. What visions are called up by these terms in the mind of one who is familiar with the East; they are essentially Oriental, and make us think of the Lotus eaters and all the poetry associated with love and luxury, flowers, flattery and feasts.

The word which carries the chief interest, perhaps, is that found in Canticles IV. 13, and translated "Orchard." In the margin of the R.V. we find "a paradise" as the alternative, and this gives us a clue to the original, which is *pardes*. In French it is translated *jardin*, and no hint is supplied that the Hebrew word differs from that for garden in other places. The Italian also gives us *giardino*, but there is clear distinction made between this and *orto*. In the Spanish translation, however, we find *huerto*, "Hortyard, a small orchard or kitchen garden generally situated near the houses," as the word for garden, while *paraiso* is the word for orchard or *pardes*. What a wonderful history this word paradise has had! It has many times been sketched in outline and written in detail, but usually in works relating to languages rather than to places of delight. The word is found elsewhere in Scripture, as in Nehemiah (II. 8., where it is translated "the King's forest or park") and Ecclesiastes (II. 5., "I made me gardens and orchards or parks"), and the Greek form of the word is found in the New Testament. Even in the days of Parkhurst, who was born in 1728, before modern philology was known, we have the word traced to its source, though the attempt to explain it fails. He tells us that the Greek writers acknowleged their indebtedness to the Orientals or Persians for the word *Paradeisos*, and adds that they gave this name to their fruit gardens and to the parks in which they kept all sorts of wild creatures. It is in this sense that Xenophon and other classical authors often use the word.

It may be observed, further, that in the Septuagint, or Greek translation of the Hebrew Scriptures, wherever the Garden of Eden is spoken of, the word *Paradeisos* is employed, while it occurs finally in the Revelation (II. 7.) where we read "To him who overcometh, to him will I give to eat of the tree of life which is in the Paradise of God," an unmistakeable allusion to Genesis II. 8. The word has been variously explained. Skeat gives its genealogy through the French, Latin, Greek and Persian, and says that Paradise means a park or pleasure ground, is an Oriental word, and is supposed to be old Persian. *Firdaus*, a garden, is still used in Persia, and is only a modernized form of the earlier word, which is related to the Sanskrit *paradeca*, but it is open to question whether 'new country' or 'far country' is the idea associated with the word. We would rather look upon it as an 'enclosed ground,' something which was guarded (whence our word garden) as many philologists maintain.

It is curious to note how this word paradise has been modified in the course of ages. Just as in modern Persian it has become *firdaus*, so in early English it became *parvis*. Thus Chaucer writes in the Prologue to the Canterbury Tales of

> "A Sergeant of Law, ware and wise,
> That often had been at parvise."

It was the name given to a room over a porch, particularly in old churches. Then it came to be extended, as some think, to the court outside. Is it not possible, however, that the reverse process was at work? A paradise was first a park or pleasure ground, then an enclosure or court, and eventually, in these less congenial regions, a covered place to which one could retire when the weather was not suitable for being out-of-doors. But enough has been said respecting the history of the word. Its use in the "Song of Songs" is associated with fruits and is therefore of special interest to the gardener. "Thy shoots are a paradise of Pomegranates with precious fruits." The writer was evidently no stranger to an Eastern orchard or fruit garden, and he knew how to make use of his knowledge by way of simile and illustration.

The other word translated "garden" in this book is quite frequently employed, especially at the end of the fourth chapter. In Hebrew it is *Gan*, the very word which is used when the writer of Genesis informs us that "The Lord God planted a garden eastward in Eden, and there he put the man he had formed." It is generally agreed that the Hebrew word *Gan* comes from a verb signifying to enclose, surround with a fence or hedge, and so means a protected or guarded place. This is interesting in view of the fact that the same idea is associated with gardens alike in the Far East and the near West. Just as our words garden and yard, with all the many cognate forms in the Romance and Teutonic languages, are associated with or derived from the Aryan form *Gharta*, "a place surrounded or enclosed," so it is with the Chinese *Yuen*, "a garden, yard, orchard, an enclosure for flowers or vegetables." Hence we obtain *Hwa-yuen*, a flower garden; *Tsai-yuen*, a kitchen or literally vegetable garden; *Hi-yuen*, a play-ground or place for public amusements, and *Yuen ting*, a gardener. Moreover, the Celestials, in common with other Orientals, use the word figuratively; *Ku yuen*, or the old garden, is the familiar term for the old homestead, or one's native place, while the Pear garden, *Li yuen*, is the name used for the theatre, the actors being the children of the Pear orchard.

Large place is given to the vine and vineyard in this beautiful song, but as these will be considered somewhat in detail in a later chapter they need not further detain us here. However, some attention must be given to the pavilions, fish ponds and fountains, without which no eastern garden would be complete. From China and Japan, in particular, we have learned much along these lines during the past century or more. What works of art many of their pavilions are! How fascinating are their fish ponds with gold and silver carp and other quaint creatures! Who, that has once spent the vacant hour therein, but remembers with delight and regret the *otium cum dignitate*, and would gladly realise once more the fascination which holds the Lotus-eater spell-bound in the langourous air?

The *Gal*, fountain or well, derives its name from *Galal* to roll, on account of the rolling, bubbling, or welling up of its waters, and we seem to miss the gurgling sound as we read that the spouse is "a fountain sealed." The same idea occurs in the phrase "a spring shut up," and "a garden enclosed." The word *Mayan* is the poetical form for *Ain*, so often met with in place-names in Palestine and elsewhere where springs are found, as *Ain-dor* (Endor), *Ain-hazor* and the like. Dean Stanley informs us that "the well of the Hebrew and the Arab is carefully distinguished from the spring. The *spring* (*ain*) is the bright open source—the *eye* of the landscape such as bubbles up amongst the crags of Sinai, or rushes forth in a copious stream from En-gedi or from Jericho."

Peculiarly interesting is the reference to fish pools (Canticles VII., 4) because in Semitic lands the goddesses have fish-ponds dedicated to them, while Venus, the goddess of love, rises out of the sea. Further, when we come to the history of the word for pool, we find that it has reached the west in the form of the Spanish *alberca*, a pond, through the Arabic, which is the equivalent of the Hebrew *bereca*.

In conclusion we must notice the pavilion or banqueting house (ii, 4) where the convivial in all Eastern lands sit to partake of their wine or other beverages, and pass the time in voluptuous ease. As I turn to the notes which I have made on this subject since I first went to the East, nearly half a century ago, I find that it would require at least a column to summarize them, while the references to Homer, Esther, Moore's Poems, Omar and others would swell the column to a page. The banner with the strange device—LOVE—is floating overhead, and the cup which inebriates as well as cheers is constantly being replenished. The atmosphere is such that no one need wonder that strong objection has been taken to the inclusion of this wonderful song in the canon of sacred writings. But it is just here that its value is to be found. It is a picture of life, and if there are signs that the love of which it speaks was not unmixed with lust, it would, nevertheless, be difficult to find among all the love poems of the East one more beautiful, or more thoroughly steeped in nature-lore and garden-craft than "The Song of Songs" which is attributed to Solomon, as all the best fables were to Æsop, and all the noblest psalms to David.

Hilderic Friend.

HORTICULTURE AT THE BRITISH EMPIRE EXHIBITION.

TULIPS.

One of the main features of the British Empire Exhibition during the past week has been the magnificent display of Darwin and Cottage Tulips. The main grouping was in the garden adjacent to the North-West Entrance, and the visitor entering by this gate was at once awarded with a most picturesque scene, for here were to be found thousands upon thousands of flowers arranged in beds set out at regular distances on the well-kept lawns.

Of the many varieties planted Clara Butt was most commonly employed and, although one of the cheapest and oldest varieties, it is, nevertheless, one of the prettiest and most captivating of Tulips; in fact, many of the more recent introductions are not the equal of this fine variety for garden decoration. If it has a fault it is that the colour is a little sickly a day or two before it assumes the salmon-rose shade which has endeared it to the hearts of all Tulip lovers. There were some forty-five thousand bulbs of this variety alone employed in the grounds.

Baronne de la Tonnaye is another excellent bedding variety; it is a strong grower and the tall stems are capped with large blooms of good substance and form. The colour is bright rose, the segments shading to a lighter tone at the margins. Antony Roozen was also freely represented; it is very similar to the foregoing variety, but flowers a day or so earlier.

Of yellow varieties Inglescombe Yellow was to be seen in abundance, and it is a variety that should be in every garden; it is one of the latest blooming of the Cottage varieties. The colour is a soft and pleasing shade of yellow. Bouton d'Or is also a choice yellow variety, deeper in tone than Inglescombe Yellow and taller.

Pride of Haarlem was to be seen in great masses and it is undoubtedly one of the foremost "Darwins" for garden display. The blooms are large and produced on long stems; the colour is bright carmine-rose, and the effect produced by this variety alone was most attractive. The beds of the variety Europe provided splashes of vivid scarlet, and other sorts contributing to the display were Royalty, a large-flowered, purple variety; Harry Veitch, crimson; Bleu Aimable, violet-blue; Margaret, blush; Ariadne, scarlet; Phyllis, pale-blush; and Negro, violet-black.

Leading from the garden, the Main Avenue was brightened by Tulips planted in beds along both sides of the road. Here, however, many of the Tulips were disappointing, and their failure is readily explained. Owing to the ground not being available for planting the bulbs at the right time, they were grown in pots and transferred from these to the beds. The Tulip, even in the initial stage of root action, will not bear disturbance, and the bulb appears to be incapable of forming new roots once the original roots have been injured or even checked slightly. Consequently it was not surprising to see a number of the plants in a poor state of health; many failed to develop blooms, and those that did gave only small flowers of poor quality.

It is a pity that the opportunity was not taken of directing the public to the superior quality of British-grown bulbs, for the display was undoubtedly the most magnificent of its kind which the public has ever before had the opportunity of witnessing. The bulbs, for the main part, were supplied by Messrs. Seymour Cobley, Ltd., and every bulb was grown on their Spalding Bulb Farm. They were, indeed, a triumph for the firm and incidentally a credit to the country. The public should have been enlightened as to the origin of the bulbs, if only to counteract the popular belief that Tulips are produced in Holland, and in Holland only. The fact, too, that at the time of our visit the different varieties were not labelled must have greatly reduced the educational value of the exhibit, and a great opportunity was thus lost. Tulips were also planted with good effect alongside the lake—some in grassland, a use to which the Tulip is rarely put, and these provided delightful patches of colour. Altogether there were some one hundred thousand Tulips employed in all and the horticultural staff are deserving of high praise in providing so brilliant a display.

Apart from the official Exhibition display, Messrs. Dobbie and Co., Ltd., had a fine collection of Tulips grown from British bulbs. These Tulips were planted in beds of one variety around the firm's formal Rose Garden and the quality and size of the flowers compared favourably with the best obtained from Dutch bulbs. Clara Butt was again magnificent, and other varieties represented were Mrs. F. Sanders, the best of scarlet varieties; Salmon King, of fiery salmon-scarlet; Bronze Queen, a tall growing sort with bronzy-fawn flowers; La Candeur, a variety which is almost white when fully opened; Europe, scarlet with a white base; Caledonia, a late variety of intense orange-red and of sturdy, dwarf habit; Golden Crown, yellow, with the perianth segments edged with scarlet; Loveliness, a delightful rose-pink bloom; Margaret, blush; Pride of Inglescombe, white and pink; Remembrance, dark lavender; Nora Ware, silvery-lilac; Violet Queen, lilac; Baronne de la Tonnaye, vivid rose; Madame Krelage, a bright rose-pink flower of large size, with light bordered segments; Violet Queen, rich violet; and Erguste, lilac-blue.

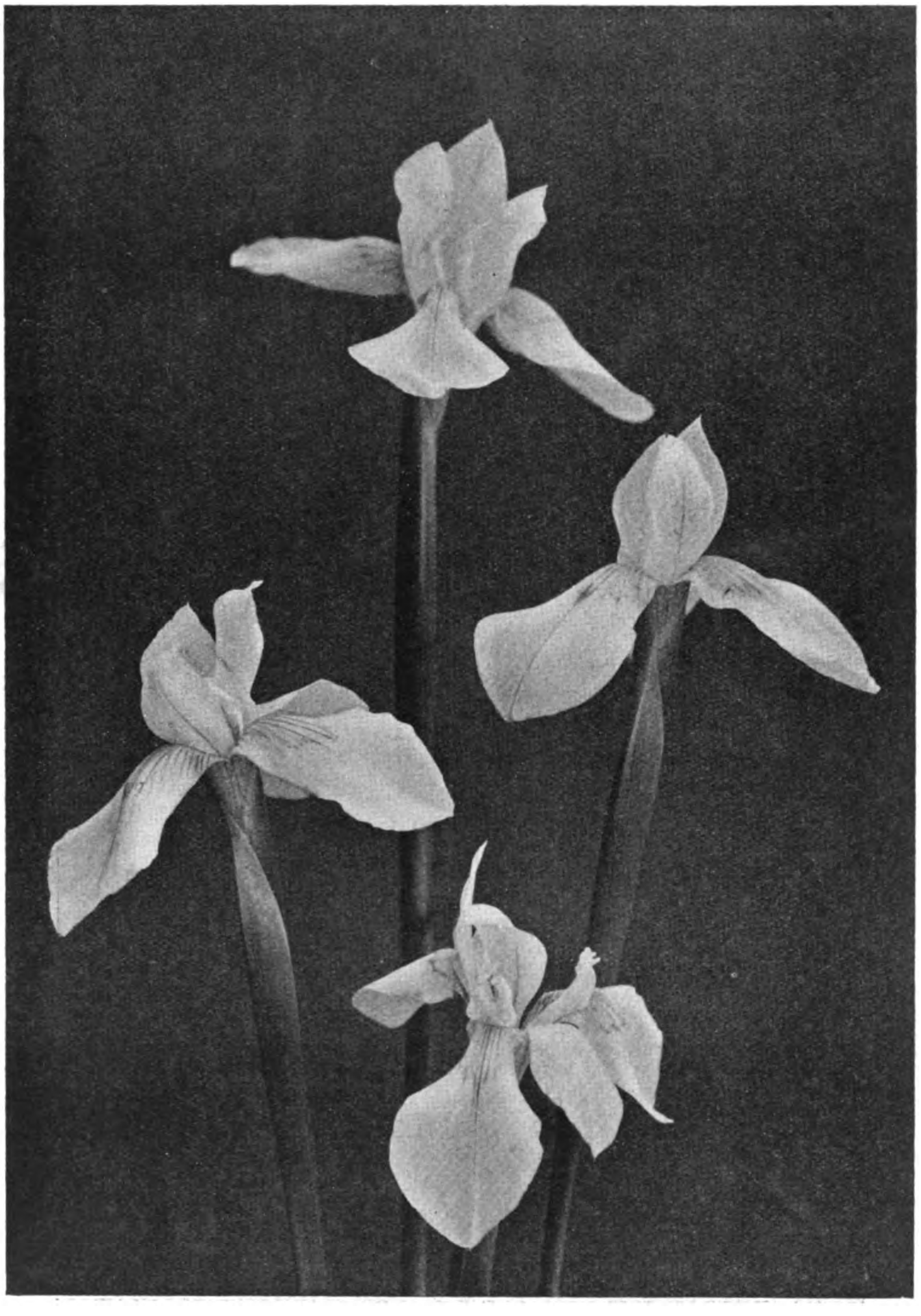


FIG. 133.—MORAEA SPATHACEA (SEE P. 317).

ROYAL HORTICULTURAL SOCIETY.

EXHIBITION AT CHELSEA.

May 27, 28, and 29.

CONGRATULATIONS are due to all concerned in the production of the magnificent exhibition held in the fine old gardens attached to the Royal Hospital, Chelsea. Lovely weather attended the opening of the show, which was graced by the presence of Their Majesties King George and Queen Mary, who were accompanied by Prince Henry. The Royal Party was escorted round the show by Lord Lambourne and Mr. Dykes, and all appeared to be greatly interested in the various exhibits. The Queen of Roumania was also present and evidently enjoyed her visit. She asked innumerable questions of the exhibitors and made many notes. Sir George Holford and Sir William Lawrence acted as escort to Her Majesty, and it was fortunate that two gentlemen so well acquainted with plants should have had this pleasing duty.

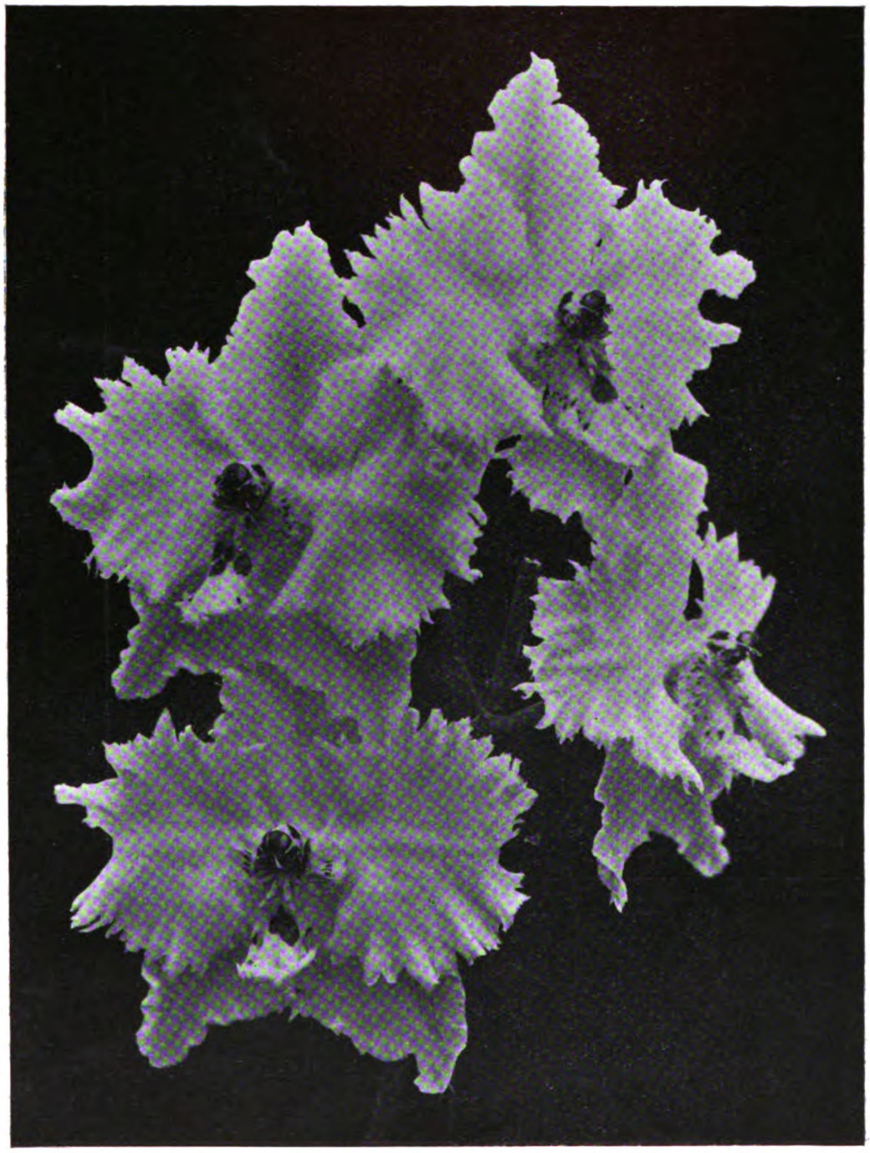


FIG. 134—ODONTOGLOSSUM CRISPUM VAR. PEARL McBEAN, SHOWN BY MESSRS. J. AND A. McBEAN AT THE CHELSEA SHOW.

Of the exhibition itself it is difficult to write with restraint, but everyone was impressed with the galaxy of colour everywhere. The Orchids, in a tent by themselves, provided a blaze of colour with abundant grace and interest. Rhododendrons and Azaleas were fine features and proved attractive; fine leaved Maples made a graceful foil for their brilliant hues. Hardy flowers naturally filled a large space and were of great beauty and interest, indeed they were more interesting than usual owing to the wonderful variety exhibited. Irises, Paeonies, Lilies, and Sweet Peas contributed largely to the general effect.

The rock gardens, as a whole, were scarcely so pleasing or effective as in some former years, but Mr. Whitelegg's exhibit was one of the best he has put up. Alpine plants were shown freely in smaller groups under canvas, and these exhibits permitted of a closer inspection of the plants than did the larger ones.

Stove and greenhouse plants figured more extensively than in recent years, and gorgeous displays of seasonable flowers were contributed by Messrs. Sutton and Sons, Messrs. J. Carter and Co., and Messrs. Webb and Sons, while Mr. H. J. Jones contributed a grand exhibit of Hydrangeas in great variety, and Messrs. Blackmore and Langdon had superbly flowered plants of tuberous-rooted Begonias. Roses were not so good as usual. Fruits and vegetables, so far as shown, were very fine and more exhibits of these useful subjects would have been welcomed.

In regard to arrangement and quality the show was rather above the usual average. There were a few outstanding novelties and some idea of the work of the Committee may be gathered from the fact that one section of the Floral Committee had to deal with forty subjects and the other section with twenty-nine.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the Chair), Messrs. Gurney Wilson (Hon. Secretary), Jas. O'Brien, Stuart Low, H. T. Pitt, Clive Cookson, J. Cypher, J. E. Shill, John C. Cowan, S. W. Flory, A. McBean, T. Armstrong, J. Wilson Potter, E. R. Ashton, W. H. Hatcher, Arthur Dye, C. J. Lucas, G. F. Moore, H. G. Alexander, Henry H. Smith, F. K. Sander, Richard G. Thwaites, and Charles H. Curtis.

FIRST CLASS CERTIFICATES.

Odontoglossum Monarch from Messrs. COWAN AND Co., Southgate. One of the largest and best Odontoglossums; the broad-petalled flowers are white, closely blotched with rich purple, and have a yellow crest. It is a very pretty hybrid; the parentage is Aglaon × majesticum.

Odontoglossum crispum Evansiae from Mr. Evans, Colwyn Bay. A superb white crispum of perfect form and fine substance, the only colour being a crimson blotch at the back of the column.

AWARDS OF MERIT.

Odontioda Iduna, Gerrish's variety, from R GERRISH, Esq., Milford Manor, Salisbury (gr. Mr. Sorrell). A showy flower with deep red and violet markings.

Laelio-Cattleya Domos majestica (*C. Mossiae × L.-C. Dominiana*) from Messrs. COWAN AND Co., Southgate. A great advance on the fine Laelio-Cattleya Dominiana, the flowers being broader and more Cattleya-like, in colour rosy-mauve with a veined purple lip.

Odontioda Dovere, McBean's variety (*Oda. Diana × Odm. illustrissimum*) from Messrs. J. AND A. McBEAN, Cooksbridge. The plant bore a fine spike of large and well formed flowers that are heavily marked with deep red.

Odontoglossum crispum Harvest Moon from H. T. PITT, Esq., Stamford Hill. A grand pure white crispum of fine substance and good shape.

Oncidium Papilio Atlas from Messrs. CHARLESWORTH AND Co., Haywards Heath. An unexpected giant in the largest type of this fine Butterfly Orchid. The broad flowers are rich cinnabar-red with a yellow blotch on the lip.

Odontoglossum Felix from Messrs. STUART LOW AND Co. A charming variety with large, blush-white flowers evenly spotted with crimson. The plant bore ten flowers.

Cattleya Tityus Queen Marie from Messrs. COWAN AND Co. One of the best of this favourite Cattleya; the large flowers are bright rosy-mauve with a crimson lip.

Brasso-Laelio-Cattleya Jupiter var. Chelsea from Messrs. COWAN AND Co. The best of this fine strain of Brassavola hybrids raised by Messrs. Cowan, the large blush rose flowers having a very broad, ruby-crimson lip.

Cymbidium Ceres Empire.—A very beautiful Cymbidium raised between C. I'Ansonii and C. Alexanderi, the large flowers being tinged with rose and having reddish-rose lines. Shown by Messrs. SANDERS, St. Albans.

GROUPS.

Sir JEREMIAH COLMAN, Bt., Gatton Park (gr. Mr. J. Collier) staged a very fine group in which the showy hybrids—many of them raised at Gatton—were the principal feature, but a very large and interesting selection of species of Orchids was also included and attracted much attention. Among the hybrids, Lælio-Cattleyas, Odontoglossums and Odontiodas were the showiest features, and among the best were the richly-coloured Odontioda Colmanii and Oda. Lady Colman, Odontoglossum Gatton Princess and others raised at Gatton. Dendrobium Gatton Sunray was quite the best of the yellow Dendrobiums. A selection of other hybrid Dendrobiums, some very fine Brasso-Cattleyas and Brasso-Lælio-Cattleyas, and the beautiful pure white B.-C. Gatton Lily were all exceptionally attractive.

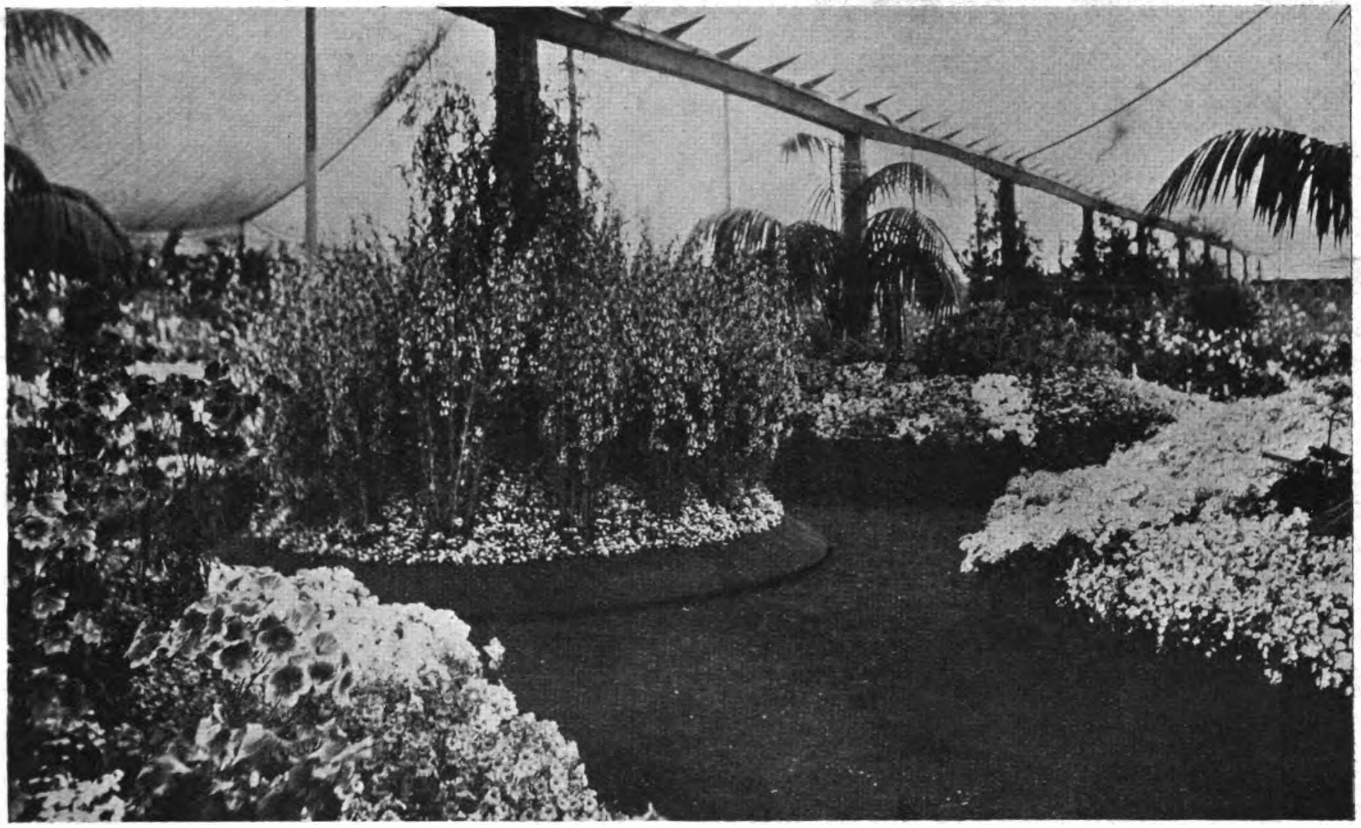


FIG. 135.—PART OF MESSRS. SUTTON AND SONS' EXHIBIT OF GREENHOUSE PLANTS AT THE CHELSEA SHOW.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood) staged a fine group rich in Odontoglossums, among which the excellent Odm. Promerens, Princess Mary was one of the best in the show. Forms of O. crispum; a rich selection of Odontiodas, including the brilliant red Duchess of York; a good selection of Cattleyas and Lælio-Cattleyas, choice Cypripediums, and an interesting selection of species of Orchids, including Microstylis Scottii, Epidendrum Endresii, Nanodes Medusae, choice Miltonias, and various Oncidiums were noted.

J. J. JOICEY, Esq., The Hill, Witley (gr. Mr. MacKay), staged a fine group of plants remarkable for their good culture and effective staging. Among prominent plants were Brasso-Cattleya Pallas, B.-C. Jupiter and other Brasso-Cattleyas. Of the Odontoglossums, O. President Poincare, with very richly coloured flowers; Odm. crispum Queen Marie and the white Odm. crispum Joiceyi were all exceptionally good.

Messrs. CHARLESWORTH AND Co., Haywards Heath, staged a magnificent group replete with good things grown to perfection, and occupying about three hundred and fifty square feet of space. Most of the showy things of the day were included, and special features were a batch of their clear yellow Odontoglossums raised between a yellow Wilkeanum and a xanthotes hybrid; a selection of their new Odontonias of the Latona type and varying in the form and tinting of their rich crimson flowers; selections of Miltonia crosses, including Beau Brummell and William Pitt, of deep violet tints, and some new forms of Vuylstekeana of rich colour. The salient features in the group were fine Brasso-Cattleyas, Laelio-Cattleyas and Cattleyas ranging from the large pure white forms to deep rose and purple. A selection of seedlings flowering for the first time gave promise of many fine novelties of the future.

Messrs. J. AND A. McBEAN, Cooksbridge, staged a grand group occupying nearly four hundred square feet, and including an excellent selection of the Odontoglossum for which the firm is famous. The finest white was Odm. crispum var. Pearl McBean, a model flower of perfect shape (see Fig. 134). Other crispums were shown in pure white and heavily blotched forms; varieties of Odm. eximium were exceedingly beautiful while the Odontiodas gave brilliance of colour from scarlet to purple and all were bearing full spikes of finely-developed flowers. Laelio-Cattleyas and Cattleyas were also well shown, some of the yellow forms being specially good; heavily-flowered Cymbidiums in the back and middle area of the group were effectively arranged with slender Oncidiums.

Messrs. STUART LOW AND Co., Jarvisbrook, had a grand group in which choice Cattleyas were a fine feature, the best of the whites being their Cattleya Mendelii Stuart Low, the choicest of its class. At the back of the group were Cymbidiums with slender Oncidiums and, in the middle, Laelio-Cattleyas, including some good yellow forms. Brasso-Cattleyas were well represented and among Cattleyas the showy Cattleya Suavior, Low's variety, with purple petals, was conspicuous. The species included rare forms of Miltonia vexillaria, in great variety, the rare rose-coloured Vanda Parishii Marriottiana, Dendrobium Parishii, D. atroviolaceum, D. dixanthum, a pretty yellow species; Cirrhopetalum Roxburghii and other Cirrhopetalums and Bulbophyllums.

Messrs. SANDERS, St. Albans, had a grand group with a fine selection of Cymbidiums at the back and scarlet Odontiodas and richly-blotched Odontoglossums arranged in front. A selection of Cattleyas and Laelio-Cattleyas included some very showy novelties, L.-C. Isabel Sander with very handsome flowers and L.-C. Erica Sander with white flowers and pretty purple lip being two of the best. Some very fine Odontoglossoms and Odontiodas were included, the scarlet forms of the Bulliantissima class being especially bright. Among the Brasso-Cattleyas, B.-C. Enchantress var. Everest with large white flowers was prominent. A large selection of Miltonias was shown, M. vexillaria Titanic, a large rose flower, and forms of M. Isobel Sander being conspicuous.

Messrs. COWAN AND Co., Southgate, staged a fine group of well-grown hybrids in which the Brassavola crosses well displayed their forms of B.-L.-C. Jupiter representing that showy hybrid at its best. The Odontoglossums were equally good and among the Odontiodas, Oda. Manora var. Brilliant was a grand form retaining the light colour of Cochlioda Noezliana, one of its parents.

Messrs. **Mansell and Hatcher**, Rawdon, Leeds, staged a fine group in which Odontoglossum Miltonias and Laelio-Cattleyas were effectively arranged. Several very distinct Odontiodas were noted and a good selection of Brasso-Cattleyas.

Messrs. J. **Cypher and Sons**, Cheltenham, noted for their fine culture and effective staging, had a very attractive group with varieties of Laelia purpurata arranged with Brasso-Cattleyas, etc. Two fine specimens of B-L-C. Veitchii, each with a spike of three noble flowers, and two of the showy Laelio-Cattleya Canhamiana splendens with six flowers were examples rarely seen. Brasso-Cattleya Triane Cypher's variety was a noble white flower with large crimson lip, and others were equally good. Scarlet Odontiodas, good Odontoglossums, and white Cattleyas were effective features.

Mr. **Harry Dixon**, Wandsworth Common, staged a very good group with a varied selection of Odontoglossums, Odontiodas, Miltonias, etc., all excellently well grown.

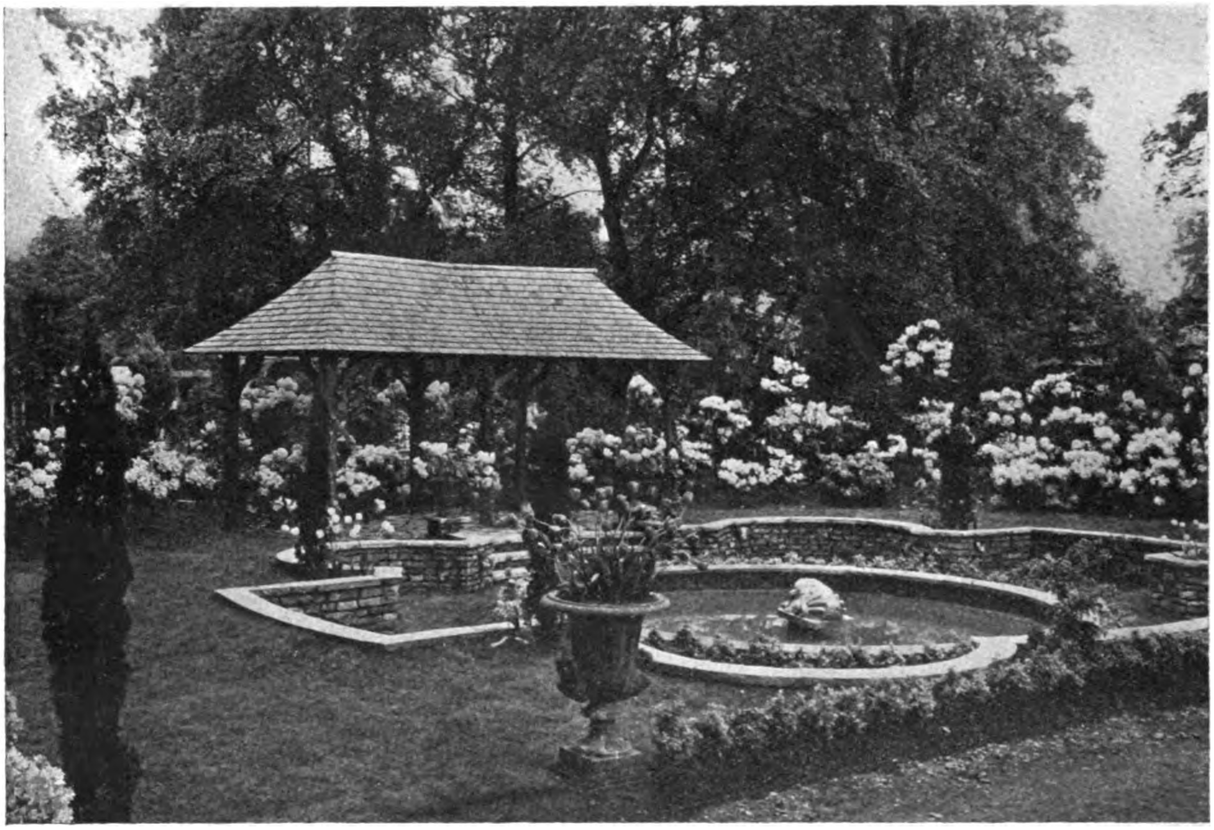


FIG. 136.—MESSRS. J. CARTER AND CO.'S FORMAL GARDEN AND RHODODENDRONS AT THE CHELSEA SHOW.

J. J. **Bolton**, Esq., Claygate (gr. Mr. S. Lyne) showed the fine Odontoglossum eximium Leonard, and Od. eximillus.

R. **Gerrish**, Esq., Milford Manor, Salisbury (gr. Mr. Sorrell), sent good Odontoglossums.

Floral Committee.

Section A.—*Present:* Messrs. H. B. May (in the chair), J. F. McLeod, Arthur Turner, J. B. Riding, Andrew Ireland, E. R. Janes, W. Howe, W. Stephens, H. R. Darlington, W. B. Gingell, W. P. Thomson, Donald Allan, J. M. Bridgeford, Charles E. Pearson, D. B. Crane, G. W. Leak and W. D. Cartwright (Sec.)

Section B.—*Present:* Mr. W. J. Bean (in the chair), and Messrs. R. C. Notcutt, G. Reuthe, E. H. Wilding, C. Williams, G Harrow, T. Hay, F. G. Preston, W. G. Baker, H. V. Warrender, W. B. Cranfield and Amos Perry.

First Class Certificates.

Meconopsis pseudo-integrifolia.—A magnificent Meconopsis surpassing in size and vigour the form generally known as M. integrifolia; the flowers are about five inches wide and of a pale yellow colour. There were four expanded flowers and four buds on the stout spike shown. The narrow leaves are soft green and hairy. Shown by Mr. A. K. **Bulley**, Neston, Cheshire.

Rhododendron Griersonianum.—A brilliant Yunnanese Rhododendron, with large, well-expanded blooms of a rich reddish salmon colour. The foliage is comparatively narrow and dull green. Mr. Lowinsky's plant had evidently been grown under glass, but Mr. Rothschild's flowers were gathered from the open, proving that the species is hardy in South Hampshire. The colour of the outdoor flowers was deeper and brighter than the others and the deep orange salmon shade almost reached vermilion. Shown by T. H. **Lowinsky**, Esq., Sunningdale, and **Lionel de Rothschild**, Esq., Exbury, Southampton.

Awards of Merit.

Meconopsis primulina.—Apparently not a robust grower, this species is nevertheless very attractive by reason of the beautiful blue shade of its slightly cupped flower. The plant shown bore only one bloom.

Dianthus musculae.—Little more than an inch high, the plant exhibited was a dense mass of small pink flowers, each bloom less than half an inch wide. The flowers were so densely produced that no foliage could be seen.

Arisaema candidissimum.—This is a quite attractive species, and of robust growth. The spathes are greenish on the outside and in the interior, while the whole of the "mouth," including the long point, is pure white. The three-lobed leaf is about a foot wide.

Pieris (Gaultheria) Forrestii.—A handsome shrub, which is peculiarly beautiful by reason of the light salmon-coloured leaves on the new growths. The closed, bell-shaped flowers are greenish white. Judging from the branches shown, this is a robust evergreen shrub. The foregoing four plants were shown by Mr. A. K. **Bulley**.

Geranium Farrer's Pink.—A dainty and altogether charming hardy Geranium of lowly growth, the plant being only about five inches high when in bloom. The shapely pink flowers are carried just above the neat, deeply cut foliage, and are an inch or so across. Shown by Mr. M. C. T. **Musgrave**, Hascombe Place, Godalming.

Linum narbonnense Tilgate Blue.—As shown this is a tall, slender plant carrying flowers of the most beautiful shade of blue, with a small white eye. Shown by Mr. H. **Hemsley**, Crawley.

Iris Camelo.—A pleasing, large-flowered, bearded Iris, of soft metallic blue colour, with deeper blue shading down the centre of the falls, and veins of the same shade. The short crest is dull gold shaded with blue. Shown by Mr. W. R. **Dykes**, Wimbledon.

Syringa Maréchal Lannes.—Another large-flowered single variety; the blooms are borne in large, dense masses rather than in the usual pyramidal trusses. The colour is pale with silvery reverse.

Syringa Pasteur.—A large-flowered single variety carrying large trusses of substantial flowers of a deep mauve colour. These two Syringas were shown by Mr. R. C. Notcutt, Woodbridge.

Pink Mrs. Gifford Woolley.—A very large-flowered variety with Carnation-like flowers of a lovely shade of blush.

Pink Fire King.—A pretty variety, with shapely blooms of a soft orange-red shade. These two Pinks were shown by Mr. C. W. **Herbert**, Birmingham.

Carnation Carola striata.—A striking variety but not especially pleasing except to those who favour striped blooms. The colour is deep red, with stripes and streaks of scarlet. Shown by Mr. C. ENGELMANN, Saffron Walden.

Carnation Sir P. Sassoon.—A splendid variety of fine form and large size. The colour is rich deep crimson. Shown by Messrs. S. LOW AND CO.

OTHER NOVELTIES.

Viola gracilis Moonlight, shown by Messrs. BEES, is a charming pale cream yellow variety suitable for the rock garden. Iris Moonlight, from Mr. W. R. DYKES, is a big, bold-bearded Iris with blush standard and pink falls, the latter veined with pale yellowish-brown at the base and having a golden crest. Oreocharis Forrestii is a lowly plant with a rosette of crinkled Ramondia foliage and numerous little spikes of yellow, tubular flowers, slightly constricted behind the five-lobed mouth. This last was shown by Mr. A. K. BULLEY, as was a specimen of Polemonium confertum. LIONEL DE ROTHSCHILD, Esq., showed a fine hardy scarlet Azalea named John Jennings, a seedling, and also a wide-flowered yellow seedling named George Reynolds; these names are those of Mr. Rothschild's gardeners at Ascot and Gunnersbury Park respectively. Stellaria chamaejasme was well shown by F. C. STERN, Esq., Montague Square.

Messrs. WATSON AND SONS, Killiney, again showed their pretty new Broom—Cytisus Dorothy Walpole, and a bright variety named Cytisus Killiney.

Roses.

Obviously all Roses shown at this date are from under glass, and the weather this Spring has been anything but favourable to the best results, so that the exhibits of Roses were scarcely so good as usual. This, notwithstanding, the displays of these flowers were very pleasing, and much interest was taken in them by visitors, who seemed especially anxious to see the newer introductions.

Messrs. ALLENS, Norwich, had superbly flowered Roses in pots, their tall Rambling varieties being magnificently flowered. And equally good were the smaller Polyantha varieties, which included the new Orange King, that showed to advantage against the deep crimson La Reine Elizabeth, which is also new, with White Echo on either side, which was appropriately placed. Vases of cut blooms included Columbia, America, grand blooms; Hoosier Beauty, Souvenir de Claudius Pernet, and Albertine, a new copper-salmon Wichuraiana variety with glossy foliage. Violetta, a new French Rose, opening violet, but fading quickly to magenta is not likely to be in popular demand, for it is after the Veilchenblau type.

Mr. CHAS. TURNER showed Roses in association with Lilacs, the latter occupying the foreground of the exhibit. The Roses included many choice sorts and the group was built up to form a bank, without any degree of stiffness. Notable sorts were Mrs. Geo. Shawyer, Hugh Dickson, Sovereign, Comte de Rochemur, Miss Flora Mitten, and Mme. Melaine Soupert.

Mr. ELISHA J. HICKS displayed on a dwarf, semi-circular dias, a fine selection of Roses, the exhibit forming the end setting of one of the largest tents. A few tall standards were employed as foils, but the group was not overdone with these. The centre consisted of a circular group of fine flowered pot Roses of such beautiful sorts as Dean Hole, Clovelly, a new pink variety; Frau Karl Druschki, Mrs. Herbert Stevens, and Joseph Welch, with the polyantha varieties Orleans and Ellen Poulsen as an edging. Grouped in the foreground were splendidly flowered plants of Souvenir de Claudius Pernet, Mrs. George Norwood, Mrs. Elisha Hicks, Premier, Molly Sharman Crawford, Margaret Horton, and Victor Tausendschon. Numerous fine Polyantha varieties were worked into the scheme.

Messrs. W. PAUL AND SON, Waltham Cross, staged a fine exhibit of pot Roses, making a feature of tall weeping standards of such varieties as American Pillar, Waltham Rival, The Beacon, a dark flowered form of American Pillar: White Dorothy Perkins, and Paul's Scarlet Climber. The base of the group was filled with well-flowered pot plants of Tea, Hybrid Tea and Hybrid Perpetual sorts, of which were specially noticed Mrs. Henry Bowles, fine clear pink; Agnes Glover, dark red; William Bowyer, scarlet; Los Angeles, Mrs. Tresham Gilby and Souvenir de Claudius Pernet.

Messrs. BEN. R. CANT AND SONS showed Roses on a table with a dark velvet ground. Sovereign, Covent Garden, Padré, and Phoebe were arranged towards the front in groups, with taller Ramblers as a background.

Messrs. W. CUTBUSH AND SON arranged, as a corner exhibit, a display of Polyantha Roses which this firm grows so well and has exhibited most effectively at these shows for a great number of years. Their method of carpeting a large area with these pretty dwarf Roses, with taller plants here and there for relief, is most effective and praiseworthy. On this occasion they showed well-flowered plants of the new Salmon Queen, Echo (like a dwarf Tausendschon), Greta Kluis, George Elger, golden-apricot; Mrs. W. H. Cutbush, soft pink, a floriferous sort; Edith Cavell; Rudolph Kluis, red; and Jessie.

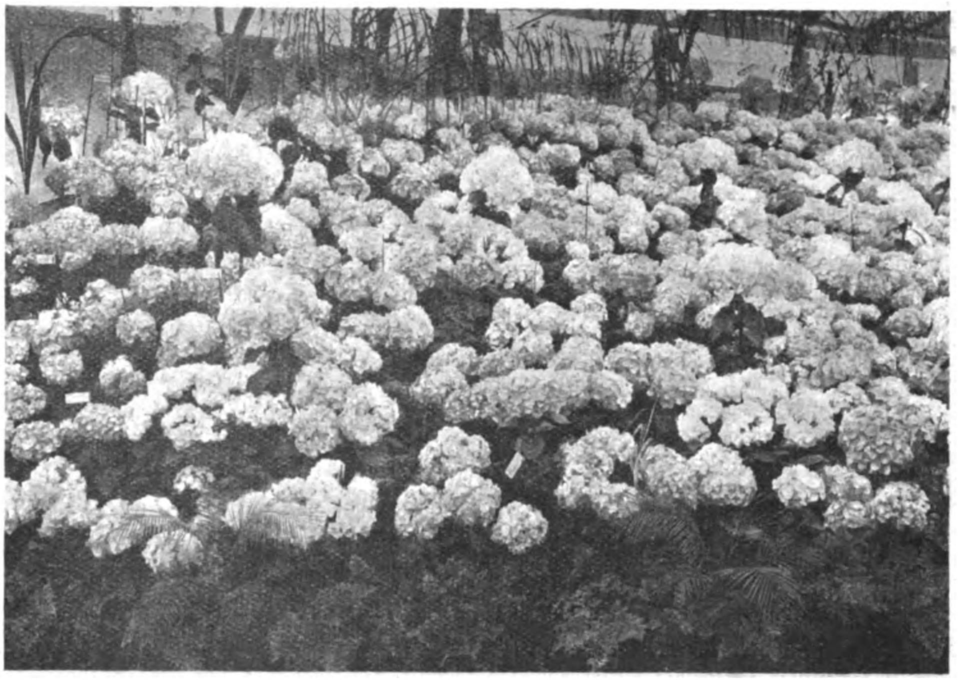


FIG. 137.—HYDRANGEAS EXHIBITED BY MR. H. J. JONES AT THE CHELSEA SHOW.

Mr. GEORGE PRINCE staged Roses in variety, which included Hoosier Beauty, C. E. Shea, Los Angeles, Souvenir de Claudius Pernet and Phyllis Bide, a new climbing Polyantha variety, with coppery-rose coloured buds fading to pale pink when fully expanded.

Messrs. F. CANT AND CO. show many exhibition blooms in their exhibit of Roses in the Orchid tent. Choice blooms of Comtesse de Cassagne, Capt. F. S. Harvey Cant, Henry Nevard, a new H.T. variety; and Betty Uprichard, with numerous pretty Polyantha and Wichuraiana varieties were features in a very pleasing exhibit.

A small exhibit of Roses was shown by Messrs. WHEATCROFT BROS.

The Rev. PEMBERTON had a bright bank of Polyantha and Wichuraiana varieties, such as Echo, pink, White Echo, Pemberton's White Rambler, Chatillon, rose-pink, and Eblouissant.

Sweet Peas.

Of all flowers no greater advance has been made in recent years than with the Sweet Pea, and the improvement, though necessarily slower than a few years ago, continues, so that something better is usually forthcoming at each Chelsea Show, and on this occasion there were several new sorts that growers will wish to include in their collections. Few other flowers include such rich colourings as the different sorts of Sweet Peas, and none lend themselves better for exhibiting.

Messrs. ALEX. DICKSON AND SONS contributed a beautiful display of Sweet Peas set up in large baskets of fancy design. The group was commendable in that ample space was allowed to give full value to each sort displayed. It was an exhibit of a unique character and a new method of displaying these charming flowers. There were some thirty distinct sorts, including three novelties in Blue Bird, a choice blue sort; Pink Perfection, an improved Hawlmark Pink and Flambeau, orange-scarlet. Others especially fine were Powerscourt, lavender; Tangerine, orange; Lucifer, cerise, and Rosamond, cerise-pink.

Messrs. DOBBIE AND CO. showed forty varieties of Sweet Peas, representing the choicest sorts in cultivation. The exhibit took the form of a terraced stand with wings, on which, amidst the greenery of Palms and Asparagus Sprengeri, tall epergnes of Sweet Peas showed to great advantage, a dark velvet background enhancing the effect. Amongst the better known sorts the most outstanding were Melba, Mrs. Tom Jones, Tangerine and Constance Hinton, whilst the novelties and newer varieties included Youth, picotee edge, blush ground; Royal Sovereign, deep orange; Rose Maiden, salmon-rose; Ruby, ruby-carmine; Mary Rose; Granadier, orange-scarlet, and W. J. Unwin, pink with a salmon flush.

Messrs. ANDREW IRELAND AND HITCHCOCK staged twenty-four varieties of Sweet Peas representing some of the latest novelties. Their new variety, The Beacon, is the largest and deepest coloured of the orange-coloured varieties—a great advance on existing sorts;

Moonbeam is a very pretty Sweet Pea with mauvy-purple wings and a lavender-lilac standard; Mme. Sarah Grand, a beautiful rich ivory-coloured Sweet Pea was shown in fine form, and others especially good were Lord Lascelles, lavender; Mascotts White, Mascotts Ingman and Annie Ireland. There were also several seedling varieties of much promise, but these were unnamed.

Messrs. SUTTON AND SONS exhibited a collection of Sweet Peas, as distinct from their large exhibit. It was a very imposing display tastefully arranged, and included a selection of the best varieties in cultivation.

Mr. J. STEVENSON arranged a collection of Sweet Peas, all varieties of his raising. His latest novelties were Charming, deep rose; Felicity, blush-pink, Grandeur, rosy purple; Coralline, orange-cerise, and Venus, cream-pink, all varieties of high merit.

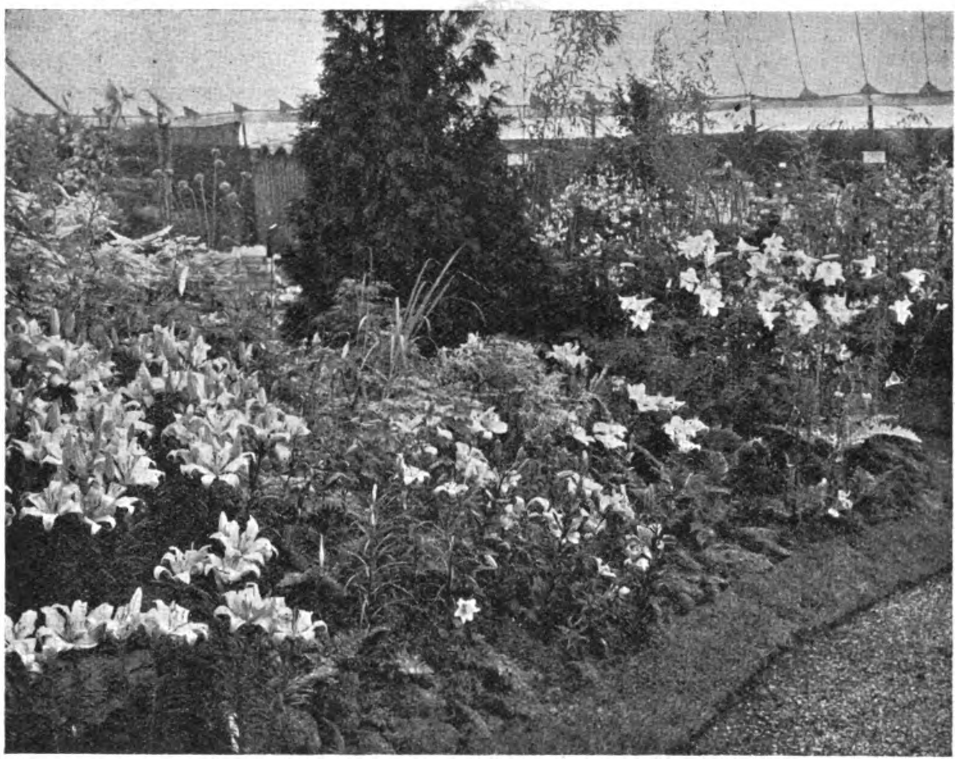


FIG. 138.—VIEW IN MESSRS. R. WALLACE AND CO.'S LILY GARDEN AT THE CHELSEA SHOW.

MESSRS. ROBERT BOLTON & SON showed varieties of Sweet Peas which were unsurpassed for quality by any others in the Show. The blooms were arranged in big gold baskets and dainty epergnes, and made a delightful display. The varieties included: Supreme, Wizard, Angele, Daffodil, Mammoth, and Constance Hinton.

MESSRS. J. CARTER & Co. had numerous fine vases of Sweet Peas in the Orchid tent, representing a selection of choice varieties, all well grown.

Carnations.

Carnations have advanced in public favour since the introduction of the perpetual-flowering type, and there are no flowers more suited for making a brilliant display at shows. They include almost every colour and in addition many of the sorts are delightfully fragrant.

MR. C. ENGELMANN contributed a big exhibit of Carnations of the perpetual-flowering type, in all some seven thousand blooms. The quality was of the highest, and full advantage was taken of the fine position—one end of the large tent—to make a grand display of these popular flowers. There were one hundred and three varieties, and all were shown in the very finest condition. Amongst the novelties was a sport of Carola, a well-formed flower of deep red colour with terra-cotta striations.

Messrs. STUART LOW AND Co. had a most dainty exhibit of perpetual-flowering Carnations, flowers that lend themselves splendidly for decorative effect, and the use of bronze baskets of a very ornamental character in which the blooms were displayed was in first-rate taste. These pretty baskets on stands and staging contained generous sheaves of flowers of high quality, and the various varieties were arranged to give a splendid colour scheme. The use of greenery and a dark velvet background served to enhance the effect. Notable sorts were Eileen Low, Lady Inverforth, light and dark salmon respectively; Sir Philip Sassoon, a very large crimson flower with smooth edged petals; White Pearl, said to be disease-resisting; Hon. Charlotte Knollys, a very large crimson-scarlet perpetual Malmaison variety; Susan Pam, vivid cerise, and Arnos Grove, a daintily tinted flower of mauve-heliotrope stippled with French-grey.

Messrs. ALLWOOD BROS. arranged a group of perpetual-flowering Carnations, their exhibit being disposed along the side of the tent and forming a series of panels, the flowers showing to advantage against a ground of black velvet. The effect was enhanced by the use of handsome receptacles—fine specimens of ceramic ware, which permitted the display of the choicest varieties in huge sheaves. Other smaller, dainty receptacles were filled with richly coloured blooms, and a hanging basket or two of Carnations was a happy touch, so that with the greenery of Palms, Ferns, and Asparagus Sprengeri a beautiful and much admired effect resulted. The exhibit embraced the pick of this type of Carnation, some seventy sorts being included. Amongst the newer varieties were Coral Glow, Eldorado, white flushed pink; Laddie, Salmon Beauty, Circe, lavender and cerise, and George Allwood, pale pink. As a separate exhibit this firm displayed their Dianthus Allwoodii on a series of stone terraces, with ornamental stone vases, and panels of grass to divide the different kinds. Thus arranged these most floriferous garden plants were charming; such sorts as Beatrice, salmon-red (new); Elizabeth, blush salmon; Barbara, crimson; Arthur, rose du Barri; Alfred, the best white sort; Joan, pink; Susan, blush mauve with a dark centre, and Hugh, purple, contributing a wealth of floral beauty.

Messrs. KEITH LUXFORD AND Co. exhibited varieties of perpetual-flowering Carnations very effectively arranged in epergnes with suitable greenery. It was a very choice exhibit and the blooms of Topsy, crimson; Tangerine, Cheerful, rosy-cerise; Coquette, Mrs. Walter Hemus, Bona, salmon-pink; Aviator and others were of the finest quality.

Mr. F. W. SEYMOUR, Finchley, showed a small collection of Border Carnations of such fine sorts as Rosalind, The Grey Douglas, Highland Mary, Salmon Clove, Gondolier, Cleopatra and Lady Shackleton.

The Hon. GEORGE HERBERT, Knoyle House, Salisbury (gr. Mr. J. F. Page), showed Carnations grown under glass, including Red Corola, Alice, Triumph, Baroness de Brienen, and White Wonder, all very artistically arranged in white vases.

Mr. JAMES DOUGLAS showed fifty varieties of border Carnations, flowers with which he excels in both growing and showing. On this occasion the blooms were even better than he usually shows them, and included magnificent specimens of Lt. Shackleton, The Grey Douglas, E. G. Quick, a fine purplish-lavender Carnation; Snowline, Viceroy, Maréchal Niel, Prima Donna, Gondolier and Purple Clove.

Mr. C. H. HERBERT showed his beautiful hardy perpetual-flowering Pinks for which he has obtained one or more awards during the past few seasons. These are delightful flowers for the garden, and they are as continuous in flowering out-of-doors as perpetual varieties are under glass. The varieties Red Indian, Gertrude, Mrs. G. Walker, Model, Progress, Victory, Princess of Wales, and Queen Mary appealed to us most.

MESSRS. ANDREW, IRELAND AND HITCHCOCK showed their new Dianthus Mascott with clear salmon flowers on stiff stems. It is a promising pot plant for market, and was raised from Scarlet Beauty Sweet William crossed with a border Carnation. It received the R.H.S. Award of Merit at the last Chelsea Show, and a Provisional F.C.C. of the British Florists' Federation on the 26th inst.

Begonias.

The customary display of Begonias from Messrs. BLACKMORE AND LANGDON was fully equal to the high standard the west country seems to have set. Their splendid exhibit was composed very largely of double-flowered varieties, and while the blooms were of great size, the quality was so high that there was not the slightest suggestion of coarseness. In size and form these Begonia blooms approximated Camellias and they embraced many entrancing shades of colour. Where the general quality is so high it becomes a difficult matter to select any for special mention, but we feel that the following may be taken as fairly representative of the whole: Lady Cory, Pavlova and Irene Tanbling, orange shades; Grace Hilda Langdon and Queen of the Belgians, shades of pink; King Albert, J. W. Pyman and Lord Methuen, crimsons; Peace, cream. Overhead there were hanging baskets of such graceful free-flowering sorts as Mollie, Gladys, Stella and Eunice. A smaller, but choice collection was set up by Messrs. BASTIN AND SON. This included the new Mrs. K. Lane, a magnificent double-flowered variety of perfect form and deep rose colouring. Mrs. J. Wilson, Princess Louise and Earl Stanhope, of the large-flowered doubles were also of great merit. Along the front of the exhibit there was a row of the dwarf bedding Begonias which combine with daintiness freedom of flowering. Flamboyant, rich crimson; Phosphorescens, bright scarlet; and Mme. Helen Harms, pale yellow, were admirable.

Hardy Flowers.

As usual the displays of hardy flowers were numerous and interesting, and in spite of the backward season there was a profusion of subjects.

Messrs. **Tucker and Sons** made a brilliant display of Alpines planted amongst rocks arranged on a full length of tabling. Included amongst a wide range of plants were a pure white form of Ramondia pynenaica; Oxalis adenophylla, in large masses, Daphne Cneorum album, a very dainty form of this sweetly-smelling shrub, which will doubtless prove a striking plant for the rock garden; the hardy Orchis Morio, in many shades of colour; Meconopis Prattii, a distinct Himalayan species, growing about eighteen inches high and bearing racemes of blue flowers with conspicuous white stamens; M. integrifolia, yellow; and Dianthus microlepis rumelicus, a lovely plant producing its pink flowers in abundance. Verbascums Cotswold Queen and Cotswold Beauty are two excellent Mulleins, the former possessing large spikes of apricot-buff flowers, while the latter is of a striking coppery-rose hue.

Mr. George G. Whitelegg also furnished a very nice rock garden with a variety of plants and included among the Saxifragas were the new S. caterhamensis, with white flowers, spotted red; S. carniolica, possessing long racemes of white flowers; S. longifolia, in fine form; S. lantoscana, a beautiful species of the encrusted type with freely-borne white flowers and S. sendtneri, a graceful pink-flowered plant.

Armeria Vindictive, a very striking Sea Pink, with large carmine flowers, was shown with effect by Messrs. **Carter Page and Co.**, who also displayed Pentstemon Davidsoni, with rose coloured flowers; Edraianthus serpyllifolius, with silvery foliage and pale purple flowers; Phlox Douglasii, pale mauve, and Dianthus neglectus, one of the best species, with rose-coloured blooms.

Apart from the outside rock garden, Mr. **Clarence Elliott** also contributed an indoor group (Fig. 141) in which figured specimens of Juniperus hibernica compressa, masses of Aquilegia glandulosa, Saxifraga umbrosa primuloides, Elliott's var.—an exquisite form of the London Pride and a native of the Pyrenees—with Celmisia Munroi, with large white flowers; Oxalis enneaphylla, and a collected form of Myosotis alpestris. Messrs. **Maxwell and Beale** showed many excellent things, chief among which were Saxifraga Esther, a hybrid between S. aizoon lutea and S. cochlearis lingulata. The flowers are of a soft yellow shade, spotted with red and borne in graceful spikes. Rose pumila was also shown; it is a dwarf plant growing about nine inches high and carrying double-pink flowers, while other good things were Geum Borisii, a free-flowering species with orange-scarlet flowers; Gazania montana, cream, blotched with black marks at the base of the petals; Oxalis adenophylla, a Chilian species with rose-coloured flowers and grey foliage; and Saxifraga bronchialis stellarina, with creamy-white flowers.

Messrs. **Gavin Jones and Ingwersen** showed many rarities, including the true form of Saxifraga lingulata, a splendid plant producing gracefully arching spikes of white flowers; Arnica montana, the Mountain Tobacco, a very valuable species with orange-yellow flowers; Campanula Stevenii, the flowers of which are funnel-shaped, and silvery-blue in colour, the whole plant growing to a height of about nine inches; Androsace lactea, with pure white [flowers and neat habit; Silene monochorum, white, and Tulipa persica, with bronze-yellow flowers, as many as four blooms being produced on the branching stems. Of rare native plants there were Gentiana verna, Primula farinosa, Anemone Pulsatilla, Arenaria verna, of very dwarf and compact habit and with white flowers, and the dainty Spleenwort Fern, Asplenium vernum.

A very charming display of hardy plants was contributed by Mr. **F. G. Wood** and particularly outstanding plants were Silene alpestris, a mass of white flowers, the petals of which are notched and shining green foliage; Helianthemum Jubilee, with rich golden-yellow flowers; Campanula Stevenii nana, a dainty form of dwarf habit and with blue flowers; Sedum coeruleum, the Blue Stonecrop; Heuchera trellioides, a graceful pink flower used in pleasing conjunction with the pale blue Veronica gentianoides and plants of Mimulus hybridus in mixed colours, amongst which was the variety Ruby, with rich scarlet-crimson flowers.

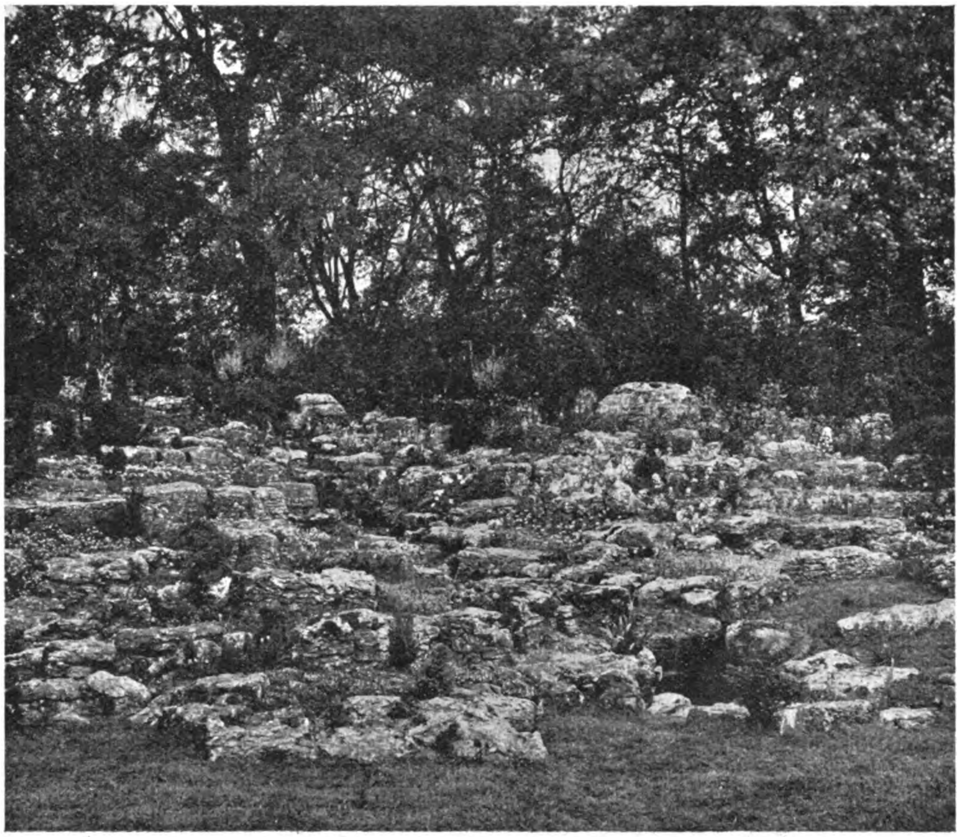


FIG. 139.—MR. G. G. WHITELEGG'S ROCK GARDEN EXHIBIT AT THE CHELSEA SHOW.

Primroses and Polyanthuses were displayed with effect by Messrs. **Storrie and Storrie**, who included in the group large baskets filled with their magnificent Invincible Strains. There were baskets of Auriculas and the beautiful Giant Border Polyanthuses in a wide range of colour, and the Cowslip, Primula veris was to be seen in most delightful colours. An exquisite strain of Aquilegias was also included in the group, the flowers being of immense size and freely produced. Scotland Yet, scarlet and yellow, and England's Glory, a cool, soft shade of rose were two excellent named sorts.

Adjacent to their "Iris walk" Messrs. **Wallace and Co.** constructed a charming glen of Liliums (Fig. 138), prettily arranged amongst a setting of hardy Ferns and ornamental foliaged shrubs. L. regale was represented by fine clumps, and hybrids of L. Martagon were to be seen in abundance, including Mrs. R. O. Backhouse and Sutton Court. The bright scarlet L. tenuifolium was also included together with varietal forms of L. Thunbergianum (elegans), three of the best being Orange Queen, bright orange-yellow; biligulatum, orange; alutaceum, pale orange heavily spotted with dark purple. The Orange Lily, L. croceum, of sturdy growth and orange-yellow flowers, spotted black; L. testaceum (excelsum) yellow tinged with dull red; L. Farreri, white with reflexed segments spotted red; L. philippinense formosum, a graceful plant with long, white, slender trumpet, and delightful forms of L. umbellatum were all to be seen in perfect condition. Combined with this exhibit were large colonies of moisture loving plants of which Primula Lissadell, P. Beesiana, Cypripedium acaule, Roscoea cautiloides and Dodecantheons in variety were plentifully represented.

Messrs. **Blackmore and Langdon** staged bold masses of Delphiniums in splendid condition. The plants were of great strength in the stem and carried large and closely set spikes of blooms. Millicent Blackmore is a striking variety with large lilac and blue flowers with black centres, while Mrs. Townley Parker, pale blue, white centre; Mrs. Christie Miller, white; King Bladud, deep purplish blue; The Shah, rose-purple, and Blue Boy, dark blue with white centre are a few of the thirty-six varieties represented in the group.

Combined with their collection of hardy Ferns and Irises (Fig. 142), Messrs. **Amos Perry and Co.**, showed hardy plants in abundance and included in the vast assemblage were large colonies of Lewisia Howellii; hybrids of Aquilegia coerulea in many colours; Cheiranthus Rossii, purple-rose; Heuchera hybrida Rose Queen, a free-flowering form with pretty clear rose bells; Polygonum Bistorta alba rosea, a handsome plant with large spikes of pink blooms; and Geum Borisii hydbrida, a cross between G. Borisii and G. Heldreichi, with large orange-scarlet flowers.

Messrs. **G. Gibson and Co.** arranged a circular ground group of Poppies, Myosotis, Primulas, and Tollius in variety, while from Messrs. **John Forbes (Hawick), Ltd.**, came the scarlet Dahlia Coltness Gem, Violas in variety, and East Lothian Stocks in white, crimson, lavender, and scarlet shades.

Alpines were contributed by Messrs. **W. H. Rogers and Co.**, and in the display were good specimens of Philesia buxifolia, rose-scarlet; Abelia floribunda, with long, rose tubular flowers; Meconopsis aurantiaca flore pleno, double, orange-scarlet flowers; Arenaria montana, with large, white flowers and charming specimens of Cupressus obtusa, caespitosa and C. o. tetragona minima, two pigmy plants with dark green foliage.

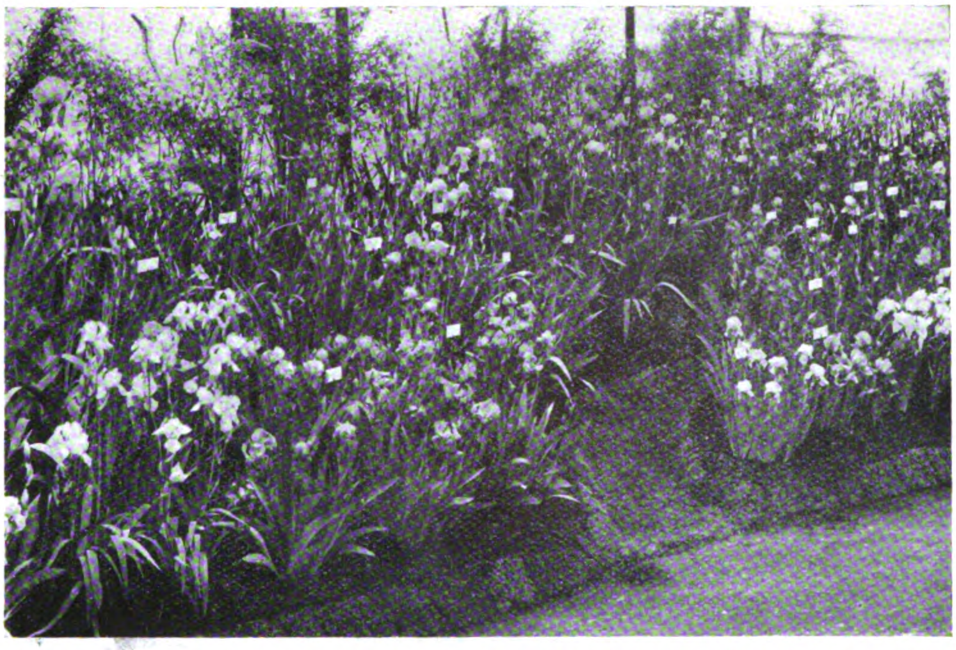


FIG. 140.—VIEW IN MESSRS. G. BUNYARD AND CO.'S IRIS GARDEN AT THE CHELSEA SHOW.

Messrs. John Waterer, Sons and Crisp, Ltd., set up a display of Alpines, among which were masses of Cypripedium acaule, Primula Veitchii, Delphinium nudicaule, bright scarlet; Linum arboreum, a sub-shrubby species with yellow flowers; and Pentstemon Bridgei, with lavender-mauve flowers borne in profusion. Messrs. Skelton and Kirby planted a piece of rockwork with Aquilegias, Sedums and Phloxes in variety, and a group of hardy flowers was staged by Messrs. Sheppard's, who showed Aquilegia coerulea, Potentilla argentea, Antirrhinum Asarina, and Achillea argentea in good form.

Messrs. Godfrey and Sons brought a collection of brightly coloured Lupins, and Violas were staged in variety by Messrs. Jarmin and Co., and included many delightful varieties of V. gracilis, including Butterfly, violet-blue; Gold Crest, primrose yellow; V. gracilis compacta, violet with white eye; and Dainty, violet-blue. A collection of Alpines was exhibited by Messrs. J. Cheal and Sons, of which Globularia trichosantha, blue; Iris susiana, Linaria pallida, a delightful Italian species; and Erodium Reichardii, with finely cut foliage and white flowers.

Mr. E. Scaplehorn showed the charming yellow Primula luteola, P. vittata, rose purple; Geum siberica, orange-scarlet; and Cypripedium Calceolus, yellow; and Mr. V. C. Vickers showed a captivating strain of long-spurred Aquilegias with mammoth flowers. The colours were varied and the blooms were borne with great freedom.

The Maytham Gardens display of hardy flowers arranged on the ground at once drew attention and evoked admiration, for there were many delightful colour schemes chosen with artistic taste. Varieties of golden Trolliuses were blended with the purplish-blue Statice profusa, while the salmon-coloured Gladiolus Erasmus and Jost van der Vandel were held in relief by purple Irises. The pale yellow Primula lutea was arranged with the grey foliaged Artemeria arborea, and there were masses of the pale blue Veronica Hulkeana, Viola Blue, a delightful shaded light and dark blue variety interspersed with Centaurea candidissima and Artemisia maritima. Other choice subjects were Paeonia Avant Garde, a pretty cream-buff, single flower; Xiphium Iris Hart Nibbrig, blue and yellow; Viola Arkwright Ruby, bronze-red; and Cytisus Dallimorei. The same firm also showed a collection of Hydrangeas in blue, white, and pink shades.

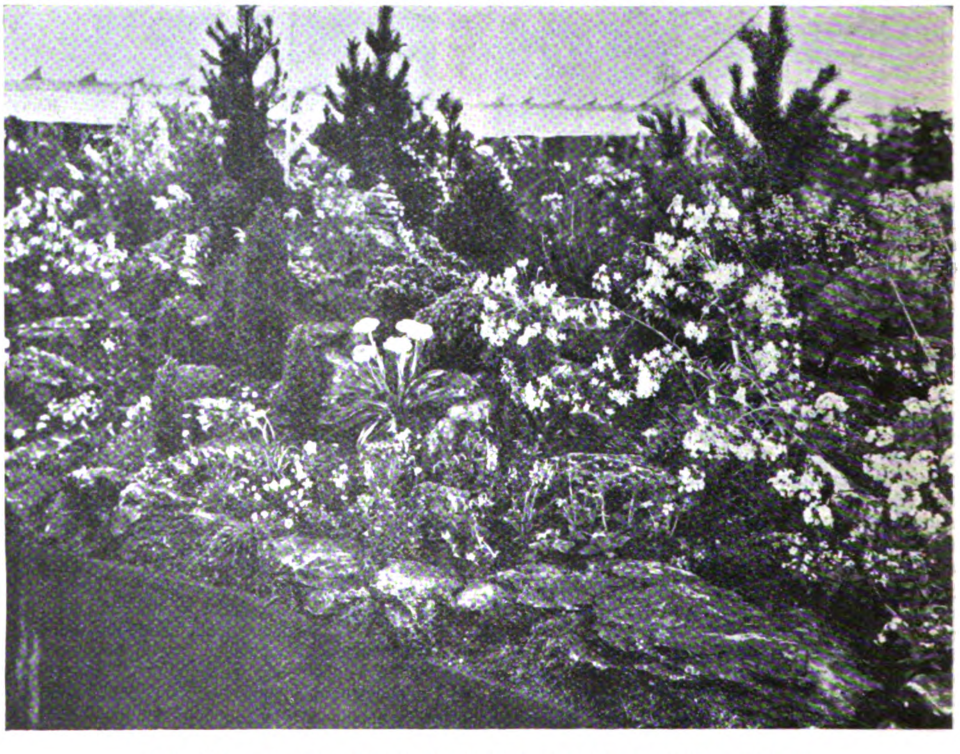


FIG. 141.—MR. CLARENCE ELLIOTT'S ALPINE GARDEN AT THE CHELSEA SHOW.

Mr. Maurice Prichard showed a highly decorative group of Miscellaneous hardy flowers arranged in a semi-circular space, and the large masses of Hemerocallis, Lupins, Trolliuses, Eremuri, Primulas and Irises made a bright splash of colour. Just opposite the same firm planted a rock garden with many choice plants including Erinus alpinus albus, Edrianthus serphyllifolius alba violacea, pale blue; Saponaria capnoides splendidissima, rose; Linaria Cymbalaria alba compacta, white; and Campanula Allionii, blue.

The group arranged by Mr. T. Carlisle comprised of a large variety of Lupins including Happiness, purple; Firefly, bright rose; Downer's Delight, pink; Geum Orangeman, Rheum palmatum rubrum, with feathery spikes of cream flowers, and Pentstemon Bridgei, lavender-mauve.

Rare hardy plants were provided in the collection from Messrs. Bees, Ltd., including Celmisia spectablis argentea, white; Roscoea humeana, rose-purple, and R. cautlioides, yellow; Primula chrysopa, pale lavender, and P. Forrestii, with drooping heads of glorious golden-yellow. There were also masses of Lilium regale, Campanula Telham Beauty, Lupins, a fine strain of Aquilegias, Irises, Pyrethrums and other subjects in this very extensive and charming group.

Messrs. John Waterer, Sons and Crisp showed the stately Eremurus Elwesianianus, pale pink, and E. Lovely, white, in grand form, and the many varieties of Lupins were pleasingly arranged. These included Delight, rose; Sunshine, clear yellow; Fascination, lilac and white; Dresden China, blush; Happiness, purple, and Queen of the West, rose-lilac. Irises, Delphiniums Aquilegias, Verbascums and other hardy flowers were also included in this very excellent group.

Delphiniums in good condition and exceedingly well grown were staged by Messrs. Hewitts, Ltd.; the choicest varieties were La Danube, rose-lilac; Star of Langport, pale blue; Sister Clare, blue and lilac; Queen of the Belgians, azure-blue; Blue Boy, pale blue, and Joy Bells, rose-lilac. The yellow Iris cajanus and I. Rembrandt, blue, together with Tulips in variety were also included in the group.

Anemone St. Brigid was shown by Messrs. Reamsbottom and Co., the flowers were of fine size and used with decorative effect.

Messrs. Prichard and Co. showed Alpines in pots which had no rockwork to aid them and relied for power of attraction on their intrinsic variety, Campanula nitida alba, Achillea Prichardii, Pratia angulata and Pentstemon Menziesii Douglasii were a few of the choicest plants.

Cassiope, bright cerise; Edward VII., crimson; Langport Knight, pink; and Prince of Wales were charming Pyrethrums staged by Messrs. Kelway and Son, who also exhibited Blue Pet, Miss Leitch and Mauve Queen Lupins.

Violas arranged in shallow trays and bowls were effectively grouped by Mr. W. Yandell and a few of the best flowers were W. H. Woodcote, pale lavender; Moseley Perfection, large deep yellow; Mrs. Fisher, violet blue shaded white: Royal Scot, violet; J. V. Macdonald, white; and Springwell Bronze, a very rich bronze-red flower. Mr. H. Hemsley included Campanula muralis, Linum arborea, Hieria elegans, rose purple, and Anemone rivularis; while from Messrs. Harkness and Co. came the charming Iceland Poppy, Tangerine, of brilliant orange colour together with masses of Heucheras, Pansies, Trollius and Funkias.

The Misses Hopkins arranged a small rock garden planted with Primulas, Phloxes, and Saxifrages and Messrs. Pulham and Son showed Chrysogonum virginianum, yellow; Saxifraga cochlearis major, Anthyllis montana rubra and Daphne Cneorum.

Messrs. Laird and Dickson showed many charming plants and of particular merit were the large masses of Primula muscarioides, purple; Ranunculus amplicaulis, white; Anemone alpina, white; and Aster staticifolia, blue. Messrs. G. Reuthe showed shrubs and Alpines, and among the latter were fine clumps of Cypripedium pubescens, and C. Calceolus, Primula Aileen Airoon in quantity, Haberlea Ferdinandi-Coburgii, and the rose-purple Incarvillea grandiflora.

Many rare species and Primula hybrids were brought by Dr. Macwatt, and a few of the best were P. anisodora, crimson purple; P. Rusbyii, rose-purple; P. florida, with dainty purple flowers; P. seclusa, rose purple with deeply coloured centre; and P. biserrata, yellow.

The old double white Narcissus, Heuchera tiarelloides, Daisies and Polyanthuses were displayed in large masses by Mr. G. A. Millen, and stately Lupins, including Downer's Delight, Mount Everest, Nimrod, Downer's Pink Pearls, and Snowfall, were magnificently shown by Mr. R. G. Downer.

Messrs. Carter Page & Co. had a striking group of Dahlias, and never before have we seen this flower at this season of the year displayed in such perfection. All the sections were represented, and noteworthy varieties were: Mrs. Warnaar, white; Mr. Dresseheys, silvery pink; Nanny Van Waveren, lilac rose; Nora Bell, crimson; Vrijbuiter, dark red; Midas, yellow; and Dr. Rose, salmon rose.

In addition to their other groups of flowers, Messrs. Cheal and Co. also displayed a group of Dahlias, and included among them were Novelty, fiery scarlet; Cheal's White; Mrs. E. Palmer, orange red: and the popular Crawley Star and White Star.

Messrs. Bakers constructed an hexagonal formal garden with raised stone walls and central path. In the borders were planted many choice subjects, including colonies of Delphinium Lady Faire, lilac blue with white centre: Trollius Goliath, a large pale yellow bloom; and Violas, Cytisus, Lupins, Irises and Primulas in variety.

A very striking splash of colour was provided by the exhibit from Mr. J. C. Allgrove, who employed flowering shrubs with effect, and interplanted them with masses of Polygonum divaricatum, feathery spikes of cream flowers: Primula Unique and P. Mrs. Berkeley, Thalictrum aquilegifolium album; and Paeonies and Lupins in fine array. Along the back of the group the tall spikes of Eremurus robustus alba and E. r. Elwesianus figured conspicuously. Hardy flowers were shown by Messrs. Oliver and Hunter, and Geum Borisii, Primula Littoniana, P. Red Hugh, and I. Susiana, were all to be found in perfect condition, while Messrs. B. Ladhams, Ltd., were responsible for a large group of flowers, principal place being given to Heuchera Pink Pearl, Primula japonica Etna, Geum Apricot and Erigeron aurantiacum.

Messrs. Bowell and Skarratt made a feature of hardy Orchids, including O. fusca while Cypripedium acaulis and C. pubescens, together with Astragalus marsilliensis, Potentilla ambigua, and Symphyandra Wanneri were to be seen in excellent condition.

Messrs. W. Wells, Junr. showed a wide range of plants and particularly attractive were Geum montanum, in fruit; Gentiana acaulis, Cypripedium spectabile, in addition to numerous varieties of Trolliuses, Lupins and Poppies.

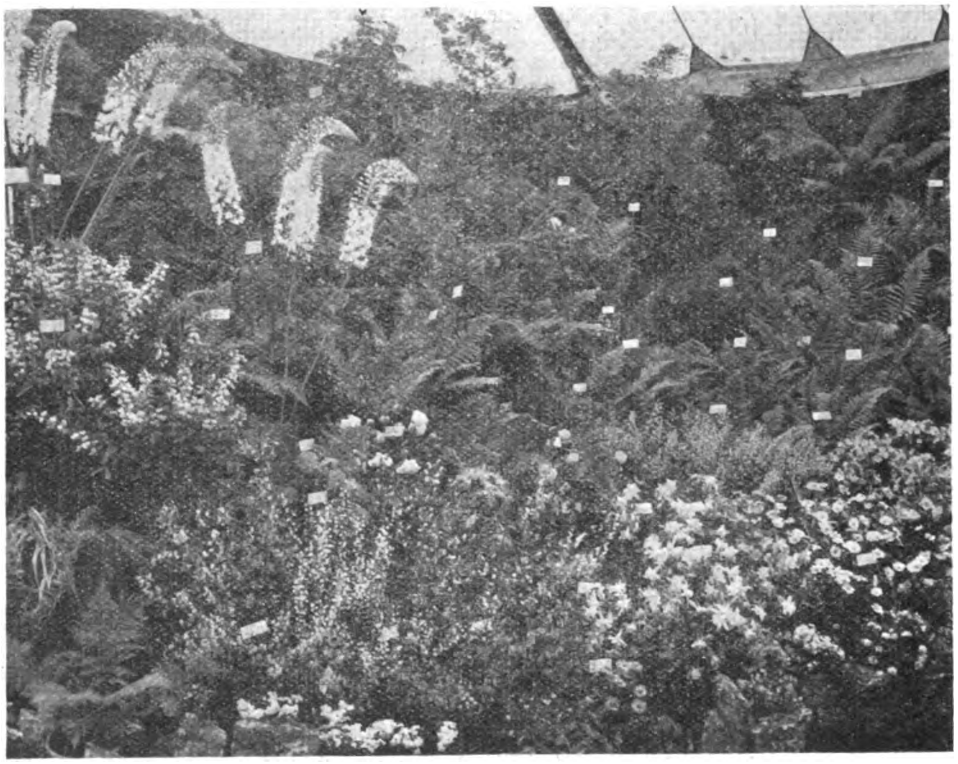


FIG. 142—HARDY FERNS EXHIBITED BY MR. AMOS PERRY AT THE CHELSEA SHOW.

Messrs. George Jackman and Co. made an effective circular group of flowers and used, with other subjects, Lupins, Delphiniums, Aquilegias, Irises and Poppies in delightful combination.

Mr. H. Clarke was represented by a bright display of Violas of which Drummer Wilson, yellow and blue; Master Banks, lemon yellow; Mrs. James Scalley, pure white edged blue; Mrs. J. Mason, cream and blue, and Lady Knox, pale yellow, were a few of the best.

Violas were also contributed by Mr. F. J. Bell, who showed Mrs. Stevenson, yellow edged with lilac; Miss Fisher, purple; Maude Bell, violet-blue; Orange Perfection, golden yellow, and Mrs. James Ritchie, white, in splendid condition.

Irises.

Collections of Irises were to be found in profusion, and Messrs. G. Bunyard and Co., contributed a most pleasing display arranged on the ground slightly raised above the level. (Fig. 140.) Of the many varieties exhibited, Rosalba was one of the best. The standards are of a pleasing rose shade with bronze purplish falls. Magnifica was also a stately variety with stems five feet tall and bearing large flowers with soft, rose-lilac upright petals and rose-purple falls. Lord of June, pale blue standards and deep blue falls; Mrs. Neubronner, yellow; Queen of May, rose-pink; Alcazar, a mammoth variety with bluish standards and velvety rose-purple falls; Viking, blue standards and falls of the same colour; Isolene, rose-apricot, a very charming variety; and Crusader Blue. Some very charming unnamed seedlings of the Regelio-cyclus section were also included in this charming group.

Messrs. R. Wallace and Co. made a very charming Iris Walk, the wide, winding path being planted on each side with masses of Irises, chiefly of the Germanica section, and backed with ornamental shrubs. The effect produced was most pleasing and refreshing. Among the many varieties were Dream, the pinkest Iris and very free: Duke of Bedford, a tall growing plant of deep violet colour; Lieut. A. Williamson, an American variety with large purplish blue falls and lavender-blue standards; Pioneer, reddish-purple; Thesius, a charming white flower; Queen Caterina, pale lavender-violet; Dominion, of tall growth with light blue standards and well coloured purple falls; and Carthusian, bluish-lavender.

Irises were also shown in abundance by Messrs. Amos Perry and Co. Here were to be found a delightful blending of I. germanica varieties with hardy Ferns, and prominent flowers were Titus, rose; Abdera, blue; Cassandra, bronze-violet; and Kulan-Tith, blue. There were also numerous hybrids of Iris tenax, including I. tebract (tenax × bracteata) with buff and purple falls and primrose standards; and I. Watbract (Watsoniana × bracteata), the falls of which are purple and maroon with bronze-purple standards and conspicuous orange haft. Regelio-cyclus hybrids were represented by Una, rose-purple tinged with grey; Psyche, white ground beautifully veined with rose-purple; and Cassandra, large standard netted rose-purple with white falls marked with purple veins and a heavy black blotch at the base. Luna is a charming Oncocyclus variety of chocolate-purple colour with blue blotches on the falls

Messrs. Barr and Sons had a pleasing group of Xiphium and rhizomatous Irises. Belonging to the former section were excellent vases of C. H. Hodges, white; Rembrandt, beautiful dark blue, orange spotted, very large; Rachel Raysch, blush and yellow; Yellow Queen, deep yellow; Berkeymer, blue and yellow; and Van der Helst, light yellow. Hoogiana is a very pretty Oncocyclus variety with pale blue flowers, and Kharput, violet standards and purple falls; Fontarabie, violet-purple; and Purple King, reddish-purple, are three good Germanica varieties.

The group from Mr. G. G. Whitelegg contained many pretty varietiesf among which were Lord of June, lavender blue standard and rich blue falls; Ivorine, ivory white; Isolene, rose-mauve; Oriflamme, purplish blue, and Empress of India, with pale blue flowers.

The Orpington Nursery Company brought a large and comprehensive display which contained many unnamed seedlings of great charm. Among named varieties were the newer introductions of Mr. Dykes, and these included Creten, a magnificent flower with violet-purple flowers; Moonlight, pale amber yellow standards and bluish falls; Istria, white and prettily veined, and Sapphire, a pretty shade of blue. There was also a large display of Florentina, with large white flowers.

Stove and Greenhouse Plants.

The principal exhibit of miscellaneous stove plants was arranged by Messrs. L. R. Russell, Ltd., whose effort fully equalled that of bygone days when these handsome exotics were more common in our gardens than at present. Splendid specimens of Dracaena Victoria served to draw attention to the merits and beauties of dwarfer plants, often of gorgeous colouring. In the centre there was a magnificent specimen of Medinilla magnifica, bearing pendulous racemes, of rosy-flushed flowers, as large as a fair-sized bunch of Grapes. Even when out of flower the noble foliage of this stove plant makes it very desirable. Clerodendron Balfouriana was represented by several floriferous specimens. Gloriosa Rothschildiana, another good stove climber, was also well shown. Many Cordylines (Dracaenas) and Codiaeums (Crotons), were furnished with beautifully coloured foliage, added to the attractions of the collection. In the centre there was a considerable batch of Anthurium Lord Lambourne, bearing many large spathes of vivid colouring. Many Bromelias, Hoya carnosa, Caladiums of delicate beauty and Anoectochilus petola were also, as usual, well grown.

Caladiums in quantity were well shown by Messrs. John Peed and Son, the richly coloured varieties included John Peed, Argol, Singapore, and Red Ensign, candidum, green and white, Sir Ernest Shackleton, with red spotting. Leopold and Mrs. Robson, of almost transparent delicacy, were also of great beauty. Along the front of these large-foliaged varieties, there was a row of C. argyrites, the small useful sort which, a little time ago, was a scarce plant, though the companion, reddish C. minus erubescens, was not on view

In addition to the Caladiums, Messrs. Peed and Sons exhibited a number of especially good doubled-flowered Petunias, Hydrangeas, Gloxinias, Streptocarpus and specimens of Dracaena Victoria. A very good collection of Caladiums was contributed by Henry B. Brandt, Esq. (gr. Mr. H. Cook), Capenor, Nutfield, Surrey. The many well-grown plants included specimens of John Peed, Mrs. John Box, Angustura, Rose Laing and argyrites. The only collection of Palms was arranged by Messrs. Robert Green, Ltd., and this included many well-grown examples. The tallest were of Kentia Belmoreana and K. Fosteriana, while there were goodly specimens of K. Dumoniana, which may be termed a more delicately graceful K. Fosteriana, Phoenix Roebellinii, P. canariensis, Cocos flexuosus, C. Yatay, Rhapis flabelliformis, Chamaerops excelsis and Livistona Hoogendorpii.

A very imposing display of greenhouse and hardy annuals grown under glass was made by Messrs. Sutton and Sons (Fig. 135). An enormous number of plants was employed and the arrangement was very successful. Rarely, if ever, has the Reading firm had a better grown or more successfully displayed exhibit at the spring show. Space precludes mention of more than a tithe of the main desirable species and varieties, but perhaps the most noteworthy, were the Salpiglossis, which included, in addition to the usual strain which has beautifully marked flowers, and good yellow and dwarf blue types. Clarkia elegans was represented by Sutton's Salmon-scarlet. Other kinds of more than average merit were Phlox Drummondii, Nemesias, Clerodendron fallax, Begonia Lloydii, Dimophotheca aurantiaca, and Calceolarias.

Near by Messrs. Webb and Sons had an attractive group of Stellata varieties of Cinerarias, Schizanthus Giant Hybrids, Calceolarias, Linaria hybrida Excelsior and double-flowered Begonias

Messrs. Carter and Co. occupied a large central space with a massed display of greenhouse plants. The centre was composed of very floriferous Clarkia elegans variety and Schizanthus hybrids. Pink Antirrhinums, what may be termed the Stellata Calceolarias, which bear flowers in great profusion, Petunia Queen of the Roses, and other desirable varieties; Cinerarias, Gloxinias, double-flowered Begonias and Sweet Peas all helped to make a memorable exhibit.

A magnificent strain of Schizanthus was exhibited by Messrs. Watkins and Simpson. This was noteworthy for the large size and rich colouring of the flowers as well as the size and freedom of the plants. On a table space Mr. A. Dawkins associated a very good strain of Salpiglossis with Calceolaria Buttercup, a free-flowering yellow variety of great value. Baron Bruno Schröder (gr. Mr. G. J. Henderson), The Dell, Englefield Green, had a tastefully arranged group of Schizanthus and Calceolarias of various types, all the plants exhibiting very skilful cultivation.

Fancy Pelargoniums were represented by sturdy floriferous plants in an exhibit by Messrs. W. Godfrey and Sons. The chief sorts were Negro, Fire King, Fashion, Devonian, Cheerful and The Queen. Zonal Pelargoniums were staged by Messrs. Jarman and Co., and Mr. R. J. Case. The double-flowered varieties included Love, Achievement, Pasteur, and Ville de Poiteurs, while the best of the singles were E. Hockley, St. Louis, Dublin, and Cassiope.

The richly-coloured Bougainvillea Mrs. Butt and B. Cypheri were prominent in an exhibit of hard-wooded greenhouse plants by Messrs. Stuart Low and Co. They also showed various Mimosas (Acacias) Clianthus magnifica and Hippeastrums.

Cacti and other Succulent plants, mostly in small pots, were staged by Miss Worth and Mr. Sydney Smith.

A magnificent group of Hydrangea Hortensia varieties was arranged in the big tent by Mr H. J. Jones. Above the massed heads of many excellent sorts he placed unusually large examples of Etincelant, Gudrum and Medersachsen which made a telling display. Other sorts of value were Marechal Foch, Elmar, Parcival and Lancelot. These provided rich blue and bright pink colouring. On a table space the Maytham Gardens showed a useful collection of Hydrangeas in the best varieties.

Ferns.

Hardy Ferns, in beautiful condition were massed with superb effect with Irises and other hardy plants, by Messrs. Amos Perry and Co., and the entire display constituted one of the most pleasing exhibits in the show. Lastrea Felix-mas propingua pendens, a massive plant with prettily crested fronds; Polystichum angulare divisilobum plumosum Stanfieldi, with closely plumose fronds; Athyrium Felix-foemina polydactylum, a distinct hardy Fern; and Osmunda Claytonia with lovely velvety green fronds were but a few of the many charming specimens.

Messrs. Ellison and Co. had a collection of greenhouse Ferns comprising all the leading varieties in splendid form. Of the many good things were Onychium auratum, with deep green foliage; Adiantum Hillii, and A. macrophyllum, the latter bearing large pinnae tinged with bronze-red; Selaginella caulescens, with bronzed fronds; Chielanthus elegans, the dainty Lace Fern; Polypodium Mandianum; Gymnogramme Alstonii, with golden reverse and the silvery G. peruviana argyrophylla, and Didymochlaena lunulata, Cacti in grand variety and Fern balls and quaint figures of the rhizomes of Davallia bullata were also included in the exhibit of this firm.

Rock Gardens.

The rock gardens occupied the usual site near the Embankment Entrance and the display was again one of the features of the Show. Messrs. T. R. Hayes and Sons had a very ambitious scheme with waterfall, stream, moraine, and every other refinement, the whole offering a very elaborate picture. Large masses of Ramondia pyrenaica and Saxifraga longifolia were set in the beautifully stratified limestone rock and Primulas in variety occupied the lower ledges. Parsley Ferns, native Orchids, Primula farinosa were planted freely about the edges of the stream and Trolliuses were shaded by pigmy Pines. In the moraine were cushions of Silene acaulis, starred with dainty pink flowers; Daphne rupestris, a very difficult plant; Cytopteris montana, a rare native Fern, while other choice subjects were Lewisia Howellii, Saxifraga Valdensis, S. Grisebachii, and the dwarf Rhododendron impeditum, with blue flowers.

Mr. G. G. Whitelegg achieved an exceedingly pretty exhibit and the result was a great pleasure (Fig. 139). Well-weathered limestone was employed and the waterfall and stream fell from ridge to ridge to a quiet pool. There were fine masses of many interesting plants such as Erinus alpinus, Anemone sylvestris, Saxifraga longifolia, Veronica gentianoides, Primula farinosa, Veronica rupestris rosea, all shown in splendid groups.

Derbyshire grit stone was employed in the rock garden made by Messrs. Hodson, Ltd., and the deep tone of the boulders rendered the picture a little dull when compared with the light stone used by the other exhibitors. There was a lovely glade planted with hardy Ferns and Erinus alpinus, Aethionema Warley Gem, Oxalis adenophylla, together with a choice collection of Brooms and Conifers were among the plants displayed.

Mr. Clarence Elliott had a fine slope of limestone with deep bays and noble masses of Aquilegia glandulosa, Pentstemon Roezelli, Gentiana bavarica, Wahlenbergia serphyllifolia and some magnificent specimens of Juniperus hibernica compressa.

Messrs. Backhouse (York) Ltd., had an imposing rock garden constructed with limestone, and Veronica salicornoides, Oxalis adenophylla, Phlox subulata varieties and Primulas were to be seen in large quantities.

Another delightful garden was that of Messrs. Pulham and Son, who achieved a charming effect with weathered limestone, waterfall and stream. It was a noble and decisive scheme with great boulders broken by luxuriant masses of Incarvillea grandiflora, Cotyledon simplicifolia, Daphne Cneorum, Gentiana acaulis and other choice subjects.

Messrs. W. CUTBUSH AND SON, Ltd., made a large bank of sandstone with cave planted with native Ferns. Azaleas were freely employed and there were drifts of Saxifrages, Lithospermum prostratum, Heavenly Blue, Delphinium nudicale and Primulas in variety.

Narcissus and Tulip Committee.

Present: Sir A. D. Hall (in the chair), Mrs. Brodie, Rev. J. Jacob, and Messrs. H. E. Hawker, H. V. Warrender, W. B. Cranfield, J. W. Jones, E. Churcher, R. Meyer, A. R Goodwin, Herbert Smith, H. Backhouse, C. W. Needham, P. R. Barr, Charles H. Curtis, and W. Poupart.

AWARDS OF MERIT.

Tulip Prince of Orange.—A splendid Tulip of large size and globular shape, of deep orange colour with a large bronzy red area on the outside of each outer segment; dark, yellow shaded base, with black anthers; sweetly scented.

Tulip Amber.—A lovely Tulip of light amber colour shaded with pink; base pale yellow; there is also pale yellow shading on the inside of the inner segments where the amber colour is deeper. Anthers black. Both shown by the WELSH BULB FIELDS, St. Asaph.

Tulips.

Messrs. ARTINDALE had a circular group of Tulips of excellent quality, including Europe, scarlet, Ouida, scarlet cerise; Serriad Van Flora, pale purple; Viking, purple; Pride of Haarlem, cerise-red, and Clara Butt, salmon-rose. In an adjacent group the same firm also showed a number of varieties of Trollius, including Lightball, Golden Wonder, Goldquelle and Helios together with Eremurus and miscellaneous hardy flowers.

Messrs. DOBBIE AND CO. contributed a magnificent collection of Tulips arranged with superb effect. The season generally has been very adverse for this flower and it was a pleasure to see such clean blooms as were exhibited in this group. Of the many varieties staged the following were a few of the finest:—Mrs. Farncombe Sanders, a large red flower; Isis, scarlet with a beautiful black base ringed with white; Carrara, a charming large pure white flower; Louis XIV, bronze, and Avis Kennicot, bright yellow with pointed segments. Orange Perfection is a pleasing flower of glowing cerise-scarlet colour, and other fine sorts included in the display were Bartigon, bright cerise; Eclipse, crimson; King George, cerise; Erguste, lavender; Panorama, bronze red, and Orange King, orange-scarlet.

Messrs. R. H. BATH, Ltd., showed a large collection of Tulips, which unfortunately showed the effects of the recent bad weather experienced in the Wisbech district. Nevertheless the blooms were of good colour and there were excellent vases of Louis XIV, Barone de la Tonnaye, Mrs. Moon, yellow; Prince of Orange, bronze-copper; St. James, bronze shaded with violet; Cardinal Manning, a fine flower of violet-rose colour; Scarlet Perfection, the colour of which is bright scarlet; Panorama, Dom Pedro, bronze, and Klopstock, lavender shaded to a paler tone at the margins of the segments.

Tulips in fine array were also displayed by Messrs. BARR AND SONS, who staged a large mass of the variety Rosalind. This is a very attractive flower of bright rose colour with a conspicuous white base. Other outstanding varieties were the white Carrara, W. T. Ware, one of the best yellow varieties and very late; Crimson Beauty, a Rembrandt Tulip with crimson flowers flaked white; Zoomerschoon, cherry-red, flaked white; Grand Maitre, deep violet; Superba, bronze-violet; Arethusa, a large, primrose-yellow bloom, and Alcemena, cherry-red with white base and yellow stamens.

Tulips in fine condition were artistically arranged by the WELSH BULB FIELDS and varieties of excellence were Amber, a fine orange-buff flower; Prince of Orange, of beautiful orange-red colour; Carrara, white; Glow, crimson; Ida Scott, heliotrope; Walter T. Ware, deep yellow; and La Merveille, orange-scarlet.

Messrs. HEWITTS AND CO. made a fine display of Delphiniums and Tulips, and among the latter were bright and clean flowers of Opal Queen, mauve; St. Simon, violet; Boadicea, and The Fawn, dove colour. Messrs. E. PAUL AND CO. staged bold masses of Tulips of which the best were Afterglow, coppery rose-red; Bleu Aimable, violet-blue; Inglescombe Yellow; Mrs. Farncombe Sanders, fiery scarlet; Lucifer, orange-scarlet; and Louis XIV., a striking flower of rich bronze-purple.

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (in the Chair), C. Allgrove, A. Bullock, J. Basham, W. Bates, G. Reynolds, E. Harriss, W. F. Giles, A. C. Smith, W. J. Jefferies, S. B. Dicks, A. W. Metcalfe, H. Prince, J. G. Weston, W. H. Divers, G. F. Tinley, W. Poupart, J. Harrison, A. N. Rawes, H. S. Rivers, F. Jordan and P. C. M. Veitch.

The only novelties submitted to this Committee for award were seedling Raspberries shown by Mr. V. C. Vickers, Newsells Park, Royston. They were named Viking and Newsells' Amber; the former is a cross between Superlative and Lloyd George varieties. Both were recommended for trial at Wisley.

Fruit.

Messrs. T. RIVERS & SONS showed pot fruit trees, including Peaches, Nectarines, Plums, Oranges and Figs. The Oranges included several very large trees in tubs, carrying big crops of the golden fruits; and there were also Grape Fruit, Lemons, Limes and Citrons. The Peaches and Nectarines were all finely fruited and included the new dark red Nectarine John Rivers. The Plums were scarcely ripe, but the trees of Early Rivers and Blue Rock were all fruiting grandly.

Mr. V. C. VICKERS, Newsells Park, Royston (Gr. Mr. Watkins) showed Raspberries in pots with the canes trained on a wire trellis. The variety Lloyd George was fruiting freely and the others were seedlings of this variety.

Messrs. LAXTON BROS. showed one of the largest exhibits of Strawberries this firm has presented at these shows. The fruits were arranged on a long table in ornamental baskets; there were also fruiting plants in pots, which, arranged with Palms and Ferns, made a bright exhibit. Their new main crop variety Majestic was afforded a prominent position. This is stated to be a very strong growing variety and produces rounded wedge-shaped fruits of a bright crimson colour; The Duke, which Messrs. Laxton Bros. claim to be one of the best early varieties ever raised is a little earlier than Royal Sovereign, and Messrs. Laxton Bros. claim that it is of better flavour and a better cropper than that well-known variety. The fruits are a brilliant scarlet and conically oval in shape; Tit-bit is especially recommended for its fine flavour, it is a white-fleshed variety; Admiral Beatty, King George, Sir Douglas Haig, and Marshal Foch are other new varieties of Strawberries shown by this firm.

Messrs. GEORGE BUNYARD AND CO., LTD., showed fifty-two varieties of Apples, arranged on a large table by themselves. The use of closely woven matting as a ground and ornamental baskets of dark mahogany colour in which the fruits were placed, with a centre-piece of hanging baskets crowned with a fine Palm, made a very attractive display. The varieties included Cox's Orange Pippin, Housgen's Golden Reinette, Claygate Pearmain, Calville Malingre, Barnack Beauty, Easter Orange, New Boss Pool, Cockle's Pippin, Hector MacDonald, Chaplin's Pippin, Clark's Seedling, Sturmer Pippin, Mannington Pearmain and Baxter's Pearmain.

Vegetables.

Messrs. DOBBIE AND CO. showed fifteen baskets of Potatos and several pot plants of Potatos, the tubers apparently representing a portion of the crop. They were very clean, well-grown specimens and included such varieties as Katie Glover, Di-Vernon, Great Scott, Tinwald Perfection, Arran Chief and Midlothian Early.

Apart from Messrs. DOBBIE AND CO.'s Potatos the only exhibit of vegetables in the show was a collection of one hundred and fifty dishes from the Hon. Vicary Gibbs' gardens at Aldenham House, Elstree (gr. Mr. E. Beckett). The high standard we have come to look for from the Aldenham House Gardens was fully maintained, indeed, the exhibit ranked as one of the most outstanding in the show. Apart from the high quality of the various vegetables the exhibit was made most attractive, and the skilful arrangement of the differently coloured subjects was an object lesson in first class arranging and exhibiting. Even Potatos were made to contribute colour, indeed, the purplish eyes and blotches on Di-Vernon, the pink of Early Round, and reddish patches on King Edward demonstrated that rich colour may develop underground, as well as above ground. Almost every kind of vegetable grown in gardens was represented, and all were as near perfection as could be expected. We were especially impressed with the fine Aubergines, both the Long Purple and the white varieties, and King George was especially attracted by these and expressed a wish to have some of these Aubergines and tubers of Oxalis tuberosum sent him. Other dishes that were especially noteworthy were Tomato Golden Nugget, Golden Wax Podded Beans; Edwin Beckett, Quite Content, Duke of Albany and V.C. Peas, Giant French Asparagus, King George and Every Day Cucumbers and New Red Intermediate Carrots. As showing the comprehensive nature of this exhibit, it included Endive, Marrows, Cabbages, Broccoli, Celery, Beets, Spinach, Broad Beans, Corn Salad, Radishes of all types, Turnips, Mushrooms, Salsafy, Mustard and Cress and many others.

⁂*Our remarks on the formal gardens, trees and shrubs, educational exhibits and horticultural sundries will be published in the next issue.*

AWARDS BY THE COUNCIL.

CUPS.

Sherwood Cup for the most meritorious exhibit in the show, to MESSRS. J. AND A. MCBEAN.

"*Daily Graphic*" *Cup* for the best Rock Garden, to Messrs. T. R. HAYES AND SONS.

Orchid Challenge Cup for the best exhibit of Orchids from an amateur, arranged on a space not exceeding sixty square feet. Only those employing not more than three assistants in the Orchid houses, including the head gardener, being allowed to compete, to Mr. H. T. PITT.

Allwood Carnation Cup for the best group of Carnations from an amateur, to Mr. F. W. SEYMOUR.

Sutton Silver Cup for the best amateur exhibit of vegetables, to the Hon. VICARY GIBBS (gr. Mr. E. Beckett), Aldenham.

Silver Cups to Messrs. SANDERS, St. Albans, for Orchids; Messrs. G. BUNYARD AND CO., for fruit; Messrs. T. RIVERS AND SONS, for fruit trees in pots; Mr. JAMES MACDONALD, for a grass garden; Messrs. J. CHEAL AND SONS, for ornamental shrubs; Messrs. G. BUNYARD AND CO., for a miscellaneous group;

Messrs. W. H. Rogers and Son, Ltd., for a mixed group of flowers; Mr. F. G. Wood, for hardy flowers; Mr. Sidney Smith, for Cacti; Mr. Elisha Hicks, for Roses; Mr. Clarence Elliott, for Alpine plants; Messrs. M. Prichard and Sons, for Alpine plants, and Messrs. James Carter and Co., for greenhouse flowering plants.

Medals.

Gold Medals.—To Messrs. J. and A. McBean, for Orchids; Messrs. Charlesworth and Co., for Orchids; Sir J. Colman, Bt. (gr. Mr. J. Collier), for Orchids; the Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham, for vegetables; Messrs. T. R. Hayes and Sons, for a rock garden; Mr. G. G. Whitelegg, for a rock garden; Messrs. R. Bolton and Son, for Sweet Peas; Messrs. Dobbie and Co., Ltd., for Sweet Peas; Lady Aberconway, Bodnant, for Rhododendrons; Messrs R. and G. Cuthbert, for Azaleas and other shrubs; Messrs. Waterer, Sons and Crisp, for Rhododendrons and other shrubs; Messrs. R. Wallace and Co. (with congratulations), for Irises, Liliums and other hardy flowers; Messrs. Blackmore and Langdon, for Begonias; Messrs. J. and C. Allen, for Roses; Messrs. R. Tucker and Sons, for Alpine plants; Messrs. Allwood Bros., for Carnations; Mr. C. Engelmann, for Carnations; Mr. H. J. Jones, for Hydrangeas; Messrs. L. R. Russell, Ltd., for stove and greenhouse plants; Messrs. Sutton and Sons, for greenhouse flowering plants

Silver-gilt Flora Medals.—To Messrs. Cowan and Co., for Orchids; Messrs. J. Cypher and Son, for Orchids; H. T. Pitt, Esq., for Orchids; Messrs. Stuart Low and Co., for Orchids; Messrs. Blackmore and Langdon, for Delphiniums; Mr. G. R. Downer, for Lupins; Messrs. Dobbie and Co., for Tulips; Messrs. Alex. Dickson and Sons, for Sweet Peas; H. B. Brandt, Esq., for Caladiums; Messrs. J. Peed and Son, for Caladiums and other stove plants; Messrs. R. Green, Ltd., for Palms; the Backhouse Nurseries, Ltd., for a rock garden; Mr. Clarence Elliott, for a rock garden; Messrs. Pulham and Son, for a rock garden; Messrs. W. H. Gaze and Sons, for a formal garden; Messrs. J. Cheal and Sons, for a formal garden; Messrs. R. Neal and Sons, for a formal garden; Messrs. A. Charlton and Sons, for shrubs; Messrs. Fromow and Sons, for Maples and other shrubs; Messrs. E. Hillier and Sons, for Rhododendrons; Messrs. M. Koster and Sons, for Azaleas and Rhododendrons; Mr. J. Reuthe, for shrubs; Messrs. L. R. Russell, Ltd., for ornamental trees and shrubs; Messrs. R. Wallace and Co., for Rhododendrons, Azaleas and other shrubs; Messrs. Bees, Ltd., for hardy flowers; Messrs. J. Cheal and Sons, for a mixed group; Mr. Amos Perry, for hardy Ferns and flowers; Messrs. R. J. Bastin and Son, for Begonias; Miss Worth, for Succulent plants; Messrs. B. R. Cant and Sons, for Roses; Mr. W. E. Chaplin, for Roses; Messrs. Bowell and Skarrett, for Alpine plants; Mr. James Douglas, for Carnations; Messrs. Stuart Low and Co., for Carnations.

Silver-gilt Banksian Medals.—To J. J. Joicey, Esq., (gr. Mr. J. McKay), for Orchids; Messrs. Mansell and Hatcher, for Orchids; V. C. Vickers, Esq., for Aquilegias; Messrs. Ireland and Hitchcock, for Sweet Peas; Messrs. Hodson, Ltd., for a rock garden; Messrs. Kent and Brydon, Ltd., for a formal garden; Italia House, for a formal garden; the Donard Nursery Co., for rare shrubs; the Yokohama Nursery Co., for dwarf Japanese trees; Mr. J. Klinkert, for clipped trees; Mr. J. C. Allgrove, for ornamental shrubs and hardy flowers; Messrs. Bakers, Ltd., for hardy flowers; Messrs. Barr and Sons, for hardy flowers; Messrs. G. Jackman and Sons, for hardy flowers; Messrs. M. Prichard and Sons, for hardy flowers; the Orpington Nurseries, for hardy flowers; Mr. G. G. Whitelegg, for Irises; Messrs. Storrie and Storrie, for Primulas, Auriculas, and other flowers; Messrs. F. Cant and Co., for Roses; Messrs. Waterer, Sons and Crisp, for alpine plants; Messrs. Maxwell and Beale, for hardy plants; Messrs. Prichard and Co., for alpine plants; Messrs. Skelton and Kirby, for alpine plants; Mr. A. Dawkins, for Schizanthus; Baron B. Schröder, for Schizanthus and Calceolarias; Messrs. Watkins and Simpson, for Schizanthus and Calceolarias; the East Malling Research Station, for an educational exhibit.

Silver Hogg Medals.—To Messrs. Laxton, Bros., for Strawberries; V. C Vickers, Esq., for Raspberries.

Silver Knightian Medal.—To Messrs. Dobbie and Co., Ltd., for Potatos.

Silver Flora Medals.—To Mr. H. Dixon, for Orchids; Messrs. E. Paul and Co., for Tulips; Mr. W. A. Watts, for Tulips; Mr. W. Yandell, for Violas; Messrs. Reamsbottom and Co., for Anemones; Mr. J. Stevenson, for Sweet Peas; Messrs. Sutton and Sons, for Sweet Peas; Messrs. Wm. Cutbush and Son, Ltd., for a rock garden; Messrs. James Carter and Co., for a formal garden; Mr. H. Brook, for a formal garden; Dr. MacWatt, for Primulas; Messrs. Wm. Cutbush and Son, Ltd., for ornamental shrubs; Messrs. Fletcher, Bros., for ornamental shrubs; Mr. T. Lewis, for Rhododendrons; Messrs. R. H. Bath, Ltd., for hardy flowers; Messrs. Oliver and Hunter, for hardy flowers; Messrs. Waterer, Sons and Crisp, for hardy flowers; Messrs. Wm. Cutbush and Son, Ltd., for Roses; Messrs. E. Paul and Co., for Roses; Messrs. Jones and Ingwersen, for alpine plants; Mr. G. G. Whitelegge, for alpine plants; Lt.-Col. the Hon. George Herbert, for Carnations; Messrs. K. Luxford and Co., for Carnations; Mr. F. W. Seymour, for Carnations; Mr. C. H. Herbert, for Pinks; Messrs. Stuart Low and Co., for greenhouse plants; Messrs. E. Webb and Sons, for greenhouse plants; Messrs. Wm. Cutbush and Son, Ltd., for Hydrangeas.

Silver Banksian Medals.—To J. J. Bolton, Esq., for Orchids; Mr. H. Clarke, for Violas; Messrs. Carter Page and Co., for Dahlias; Messrs. R. Gill and Son, for ornamental shrubs; Messrs. R. Green, Ltd., for Bay trees; the Orpington Nurseries, for shrubs; Sir Arthur Vivian (gr. Mr. A. A. Cavanagh), Bosahan, Cornwall, for flowering shrubs; Messrs. W. Watson and Sons, for ornamental shrubs; Mr. G. G. Whitelegge, for Azaleas and other shrubs; Messrs. W. J. Godfrey and Son, for a mixed group; Messrs. Hewitt and Co., for a mixed group; the Maytham Gardens, for hardy flowers; Messrs. Carter Page and Co., for a mixed group; Mr. R. Reuthe, for hardy flowers; Mr. T. Carlile, for hardy flowers; Messrs. Harkness and Sons, for Lupins and hardy flowers; Mr. E. Scaplehorn, for hardy flowers; Mr. C. Turner, for a mixed group; Mr. W. Wells, Jnr., for hardy flowers; Mr. H. N. Ellison, for Cacti; Mr. George Prince, for Roses; Mr. H. Hemsley, for a miniature alpine garden; Messrs. Laird and Dickson, for alpine plants; Messrs. W. J. Godfrey and Son, for Pelargoniums and alpines; the Maytham Gardens, for Hydrangeas; the Leeds University, for an educational exhibit.

Bronze Flora Medals.—To the Misses K. and E. Hopkins, for alpine plants; Messrs. Sheppard's Sawhurst Nursery, for alpines.

Bronze Banksian Medals.—To the Cambridge Botany School, for a scientific exhibit; Mr. James Macdonald, for Grasses; the Ministry of Agriculture, Harpenden, for a scientific exhibit.

SCHEDULE RECEIVED.

Newcastle and District Horticultural Mutual Improvement Society.—Third Annual Chrysanthemum show to be held in the Church Institute, on Friday and Saturday, November 14 and 15.—Secretary, Mr. A. Standing, 4, Major Terrace, Felling.

TRADE NOTES.

Among the joint stock companies registered in Scotland during the week ending May 24, was that of Messrs. D. and W. Croll, Ltd., 63, Commercial Street, Dundee (private company), seedsmen, florists, and nurserymen. The capital is £10,000 in £1 shares.

A new company has been formed to acquire the Beecham Estates and the pill manufacturing industry known as Beecham's Pills. The share capital of the new company is £1,850,000 eight per cent. cumulative preference shares and £900,000 ordinary shares at £1 each. The preference shares are now being offered for public subscription. There is also a £1,000,000 six per cent. First Mortgage Debenture Stock which has been subscribed for privately. The Covent Garden Estate, which includes the Royal Opera House, the part of Covent Garden market known as the dedicated market, the English and Foreign fruit and flower market, the Russell Street and Tavistock Row markets, together with Bedford Chambers, numerous shops and premises in streets adjacent to the market, and the Tavistock and Hummum's Hotels produced a net revenue in 1923 of £103,834, and the income is expected to increase very considerably in the future when the leases of various Covent Garden properties expire. The profits of the pill-making business are said to have averaged £156,657 during the past five years. The vendor of the company is Sir Thomas Beecham, Bt., who will receive, beside cash, an allotment of £950,000 ordinary shares of the company at par.

ANSWERS TO CORRESPONDENTS.

Correction. Mr. John Dick writes to inform us that his father, Mr. J. C. Dick, whom we inadvertently referred to on p. 282 as the late Mr. J. C. Dick, resides at Poldrait, Linlithgow.

Names of Plants: *T. R. C.* Rhododendron glaucum. *M. J. W.* Exochorda grandiflora. *H. G. P.* Streptosolen Jamesonii. *W. H. B.* Prunus Padus var. Watereri. *H. M.* 1, Cercidiphyllum japonicum; 2, too small to identify; 3, Lonicera Maackii; 4, Acer crataegifolum 5, Torreya californica; 6. Spiraea van Houttei; 7, Olearia Haastii.

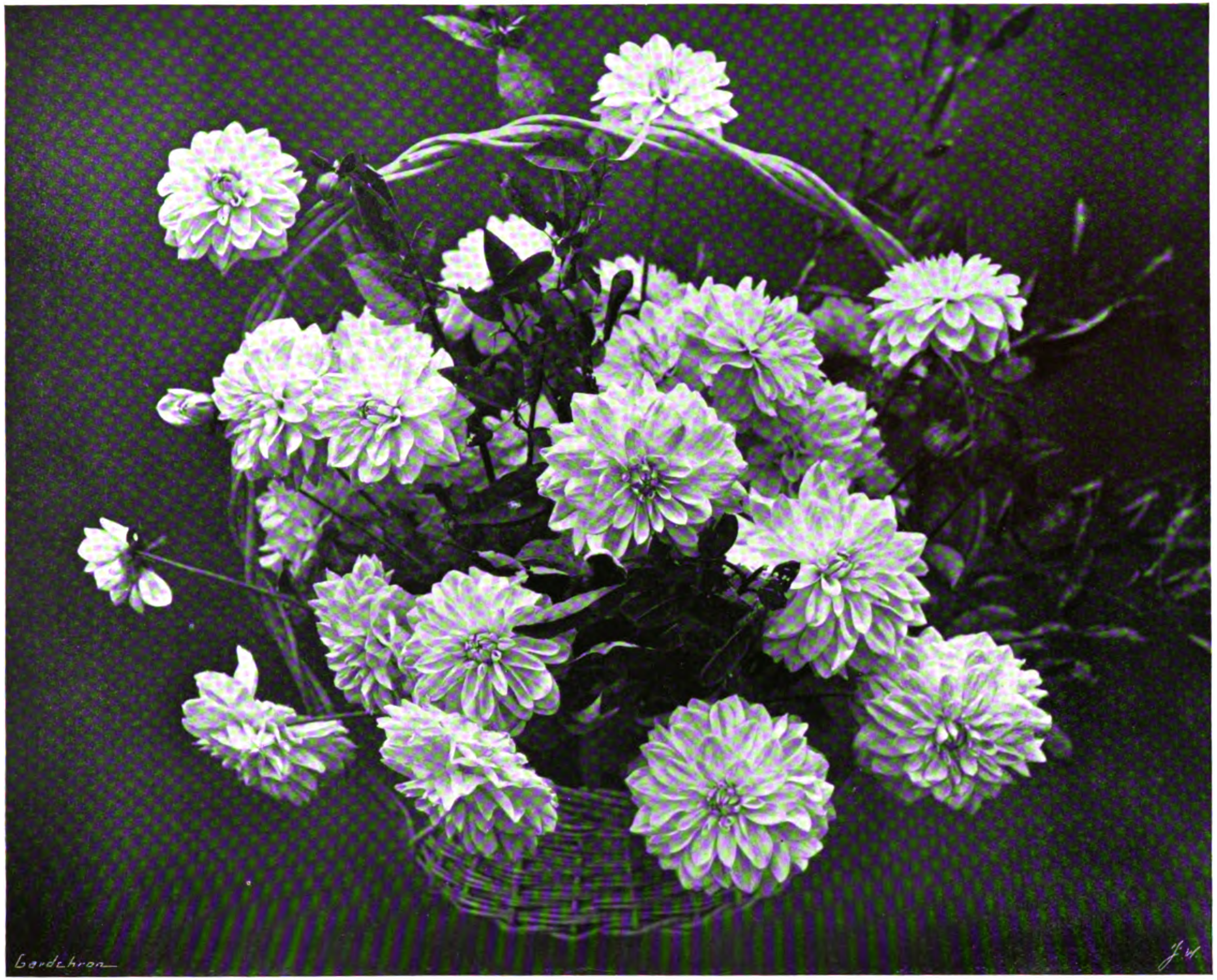
Slugs and Beetles Affecting Roses: *R. F. S.* One of the best methods of destroying slugs is to treat the ground in autumn with napthaline applied at the rate of two ounces to the square yard. digging it into the surface soil. There are also some very efficient slug traps on the market for ridding the soil of this pest. There are a number of different beetles affecting the Rose, principally the Cockchafer and the Summer Chafer. Nothing but hand picking can be resorted to for these insects and they may be collecetd off the bushes in the day time. In the autumn and early spring unhealthy trees should be examined and the grubs picked out by hand.

Tulips not Flowering: *H. and Co.* There is no disease present in the bulbs, and the reason why they have not flowered is because the bulbs did not contain an embryo flower when they were planted in the autumn. Non-flowering bulbs send up one large leaf, but if given good cultivation they will no doubt produce flowers.

Tomatos Diseased: *F. W. M.* Please send specimens for examination.

Communications Received.—F. S. and S. Ld.—J. S.—Plantora.—W. S.—J. F.—E. W—J. S. D.—F. B.—W. W.—C. B.—W. A. X.—G. S.—M. E.—R. F. B.—W. Y.—W. R. C.—H. D. B.

Supplement to The GARDENERS' CHRONICLE.


Gardchron
J.W.

DAHLIA DELICE.

THE
Gardeners' Chronicle
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SUPPLEMENTARY ILLUSTRATION.

Dahlia Delice.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 58·6.

ACTUAL TEMPERATURE:—

Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 4, 10 a.m.: Bar 30·1°: temp. 58°. Weather, Dull.

Westonbirt in Spring.

To see Westonbirt in spring is to realise that well-grown trees and shrubs are paramount in beauty over all plants. Whilst frost and gales and floods may rob the alpine and flower garden of their loveliness, the sturdier plants show far fewer signs of distress—they look on tempests and are never shaken. It is true that the full splendour of colouring of Maple, Snowy Mespilus, Liquidambar and Parrotia are reserved to enliven the dying year; but in the softness, pureness and freshness of the spring tints is the lure of youth, more charming than the opulence and magnificence of age. The happy visitor to Westonbirt who makes the tour of the arboretum in the company of Sir George and Lady Holford—the "head gardeners" of the arboretum—knows not whether most to admire the beauty of the individual specimens of trees and shrubs, the general effect of their skilful plantation, or the judicious way in which the plants are grouped. The wise are always fortunate and the wisdom of two generations exercised continuously and solicitously for over half a century has achieved the happy result that the visitor may wander over one hundred acres of arboretum and three hundred acres of planted woodland and find at every step some new tree to admire. The setting of these jewels of the plant world was happily made before the specimen trees and shrubs were planted. Sir George Holford's father, with remarkable foresight, and as it would seem, prevision of his son's enthusiasm and judgment, set a great girdle of Yews around the ground which is now the arboretum, with the result that each group of specimens stands against a perfect background. Nor is there monotony, for the Yews were planted in no symmetrical manner and have been thinned, and so grouped fulfil their purpose with unobtrusive efficiency; each tree or clump of Yews seeming to be a chance and natural adjunct to the groups associated with them. Much of the charm of Westonbirt is a charm of youth and lusty prime; for although many of the Conifers have attained nearly to one hundred feet, and some have overtopped that height, they are still young as trees go, and many, if not most, are only just beginning their second half century of life. On approaching the lodge gates the visitor is met by two weeping Beech trees which, if he be fanciful, may seem with their sweeping branches clothed with luscious green young foliage to welcome him with obeisance. On either side just within the gates are tree-groups, among which Pinus rūdis, with its green cones, and a magnificent Cupressus macrocarpa in its stately adult form, are prominent. As undergrowth is a mass of Berberis vulgaris, some fifteen feet in height and forty feet through, and no Wheat near by for it to blight. Outside the gates the arboretum begins with a great avenue boldly planned of Cedrus Libani, with Tulip Trees at intervals between. Limes which were planted are giving place to these more interesting trees, behind which stand Beech and behind them the Yews. On one side away from the avenue is a group of Acer pictum (rubrum) with white stems and red suckers, this group a present given by suckers produced by the original plant set fifty yards away. Corsican Pine does well at Westonbirt and the tallest trees overtop the one hundred feet mark. Of course the Maples, for which Westonbirt is so justly famous, claim the visitors' attention, and looking on Acer nikoense and remembering its red autumnal magnificence no difficulty is felt in subscribing to Sir George Holford's opinion that the Nikko Maple is the best of this lovely family. Near it in another group is A. palmatum septemlobum atropurpureum, its young leaves, prophetic of autumn, already possessing a vinous-purple colour. That there shall be no monotony the variety of trees ensure, but the underplanting makes doubly sure. Among the shrubs which enhance the beauty of the scene are large breadths of Spiraea van Houttei, sometimes though wrongly known as S. confusa. This hybrid rivals S. arguta in the loveliness and prolificness of blossoms, and to see it at Westonbirt is to award it unhesitatingly the palm—at all events for outdoors, for though not more beautiful it is later than S. arguta and a better doer. Prunus Sargentii, native of Japan, one of the best of the tree Cherries was just between tides, its April flowers, large and flushed were over and the black fruits not yet formed. It must be seen in early spring or late autumn when its foliage flushes out and contrasts with the wonderful vinous-rose madder tones of Euonymus alatus which tree companions it. Of the latter plant, Sir George pointed out that when its stems fail to form their wings properly the autumn leaves are of a poorer colour. Next is a more open part of the woodland with Crataegus rivularis, just coming into bloom, and Maples, with Copper Beech in company—a wonderfully bright picture, and to be brighter when in the first week of October, Acer japonicum filicifolium, now in flower, takes on its scarlet and yellow livery. The flowers of this Maple are red, its leaves are much dissected and it makes a tree of upright growth twenty-five feet in height. Near to it are Acer capillipes, hardy and brilliant with long, spicate inflorescences, and A. laetum tricaudatum introduced by Wilson from China in 1901—with leaves of the colour of those of an Eucalyptus. Near to one of the newer Birches—the Japanese Betula Maximowiczii, with its big, heart-shaped leaves, is a great mass of what will certainly prove one of the best of modern introductions to the wild and semi-wild garden, the Chinese Lonicera syringantha. Bean's commendation of this plant, its delicacy of colouring and delightful fragrance deserves the amplification that it flowers freely—at all events at Westonbirt. The mauve tint of flower is very pleasing and the blooms retain freshness and fragrance for a long time. Another shrub which is effective in spring and autumn is the low-growing Hamamelid Fothergilla major, introduced one hundred and fifty years ago but lost to cultivation here till reintroduced by Kew in 1902. Its white, fragrant spikes of flowers are borne freely in May and its autumn colouring is, according to Sir George, as good as that of any Maple. The reader needs must picture in his mind that these undershrubs are planted with no niggard hand and that they occur and recur in large breadths and yet are not crowded. Here and there in all forms of cultivation, shrub-like, young standards and full trees are many specimens of Cercidophyllum japonicum, which according to Elwes is a timber tree of one hundred feet in its native island of Yezo. Those who have tried to grow it deplore the fact that Cercidophyllum begins growth so early that its young shoots are apt to be checked or killed by frosts; but at Westonbirt Sir Geo. Holford has taken his courage in both hands and has made many specimens into trees, some of which have attained already to a height little less than thirty feet. In autumn it is distinguished above all other trees by the fact that its dying hues are lemon and pink. These are but the first fruits of the harvest of knowledge and enjoyment collected during a visit to Westonbirt in spring. Many other brilliant plants remain to be mentioned, but of them another time. Enough, perhaps, has been said to demonstrate that a visit to the arboretum can be for anyone interested in trees and shrubs no hurried affair. So numerous are the objects that demand attention that even a long morning's inspection does not carry the visitor far out of range of the luncheon bell, and even though the inspection be resumed immediately after lunch, it will be long past tea time before the tour of the woodland is finished, and then there are the gardens with the Orchids and the Amaryllis. Even the greediest horticulturist may achieve satiety at Westonbirt, and though he knew never so much before, his knowledge will be far greater after his visit, and not his knowledge only, but his appreciation of the beauty of its plants and the kindness of his hosts.

Our Supplementary Plate.—The Dahlia is admirably suited for floral decorations, as the blooms remain fresh for a very considerable time when cut and placed in water. Amongst the numerous types of the flower there are several which are suited to the purpose and the modern decorative sorts are less stiff and formal than the old Show and Fancy types. The supplementary plate presented with this issue depicts a basket of the variety Delice, one of the most charming of all Dahlias, the well formed flowers on stiff, long stems making a very pretty decoration either in a basket, as in the illustration, or in vases. The colour is a clear soft pink. The blooms are not so large as in some of the type, but even the bigger flowers of such sorts as Polar Bear, which Mr. Beckett showed so well at the Royal Horticultural Society's meeting on September 18, 1923, are splendid for floral decorations and especially where a bold effect is desired, such as in large halls and corridors. Dahlias are also very popular for the decoration of churches at harvest festivals. Other types, such as Collerette, Single, Paeony-flowered, and Star Dahlias all offer excellent material for floral decorations, and the blooms are valuable at a time when other flowers are scarce. Star Dahlias are especially pleasing when arranged with suitable greenery in vases and other fancy receptacles.

Imports of Potatos. — Imports of Potatos registered during the week ended May 24 amounted to 21,176 tons as against 12,498 tons in the previous week. Spain sent 4,270 tons, as compared with 350 tons a week ago, while Poland sent 3,282 tons, Holland 2,979 tons, Denmark 2,835 tons, Belgium 2,274 tons and the Canary Islands 1,407 tons. New Potatos are cheaper, first quality Channel Islands tubers averaging about 4d. per lb. as compared with 6d. last week, while Cornish new Potatos sell at about 3½d. per. lb.

Glasgow Flower Show.—H.R.H. The Duchess of York will open the third annual Flower Show promoted by the Corporation of the City of Glasgow in conjunction with the Glasgow and West of Scotland Horticultural Society. The exhibition will be held in Kelvin Hall on September 2, 3, 4, and 5 next. The schedule of prizes, now obtainable from the Secretary, Mr. W. J. Carrick Kerr, 38, Bath Street, Glasgow, includes no fewer than 411 competitive classes, in which £1,500 in cash, in addition to valuable cups and other awards, is offered in prizes.

A New National Pinetum.—The bad atmospheric conditions existing at Kew have for a long time made it impossible for Conifers and Taxads to be grown in the Royal Gardens in anything like the standard of health befitting a national collection. It is gratifying to learn that through the courteous co-operation of the Forestry Commission a new national Pinetum has been selected at Bedgebury, Kent, situated about ten miles east of Tunbridge Wells. The area to be planted is about fifty acres, but it is hoped to extend this area as time goes on, for apart from maintaining a botanical collection of Conifers and Taxads, experimental plots are to be laid down to test their value for the production of timber. The soil and atmosphere at Bedgebury are both ideal for the cultivation of Conifers, and the contours of the land will make it convenient for the effective display and grouping of the trees. A small lake is situated at the lower end of the Pinetum, and moisture-loving Conifers will be appropriately planted. The general management of the property will be undertaken by the Forestry Commission, but the trees will be supplied and the planting of the collection superintended by Kew. A joint committee to arrange the lay-out, the execution of the work, etc., has been formed, consisting of Sir John Stirling-Maxwell, Dr. A. W. Hill, Mr. W. J. Bean, Dr. A. W. Borthwick, and Mr. H. A. Pritchard.

MR. W. J. PENTON.

Mr. W. J. Penton. — General Sir Arthur Paget's beautiful gardens at Warren House, Coombe Wood, Kingston Hill, have been under the charge of Mr. W. J. Penton since 1916. These gardens are beautifully kept and contain an excellent collection of trees and shrubs, including a fine series of Rhododendrons. Part of the grounds were formerly a portion of Messrs. James Veitch and Sons' old nursery at Coombe Wood and this has been converted into an extensive, beautiful and interesting Japanese garden. Orchids and Lilies are other subjects particularly well grown at Warren House. Mr. Penton has had a wide experience. Born at Farnborough Hill he commenced his gardening career in the Marquis of Winchester's gardens at Amport St. Marys, Hampshire, at a time when the late Mr. William Manning (brother of Mr. Thomas Manning, who was for many years manager to Messrs. James Veitch and Sons) was the gardener. After four years at Amport St. Marys, Mr. Penton filled one or two minor appointments and then passed on to Sydmonton Court, Newbury, where the gardener, Mr. Richard Lye, was then at the height of his fame as a successful cultivator and exhibitor of vegetables. From Sydmonton Court he went to Messrs. James Veitch and Sons' nurseries at Chelsea, where he spent eighteen months in various departments, and left to become journeyman at Fawsley Park, Daventry, which was at that time a show place from the gardening point of view, and where large specimens of stove and greenhouse plants were also grown. Two years later he became foreman at Ranston House, Blandford. Here another two years were spent and then he became foreman at Rooksnest Park, Godstone, the seat of the Hon. Pases Glyn. Two years later he became foreman at Rendlesham Hall, Suffolk, Lord Rendlesham's beautiful place, where gardening was carried out on an extensive scale, and where there was at that time one of the finest collections of Orchids in the country. Four years later, on leaving Rendlesham, Mr. Penton became gardener and Orchid grower to Herbert Harris, Esq., Bowden Hill House, Chippenham, where he followed the late Mr. John Deacon, who had just been appointed gardener to the Rt. Hon. Joseph Chamberlain, at Birmingham. Mr. Penton remained for seven years at Bowden Hill before accepting the appointment of gardener and instructor at Lady Warwick's Horticultural College, Studley Castle, Warwickshire. Two years later he was appointed gardener to the Marquis of Winchester at Amport St. Marys, thus taking charge of the gardens where he commenced his career. Two years later he was offered and accepted the position of head gardener and steward to the late C. Rute, Esq., at Rooksnest Park, Godstone, where he remained for eleven years and carried out extensive alterations and the planting of orchards and pleasure grounds. It is thus interesting to observe that Mr. Penton returned as head gardener to two gardens in which he was employed as a very young man. In 1916 Mr. Penton accepted the appointment which he continues to hold so ably at Warren House, Kingston.

Heavy Rainfall at Gresford.—We learn from Mr. R. H. Crockford that a severe thunderstorm broke over Lord Wavertree's garden at Horsley Hall, Gresford, near Wrexham, on the 31st ult. Most of the rain fell during 9 p.m. and 10 p.m., and on the morning of June 1st the rain gauge showed that during the previous twenty-four hours 3.74 inches of rain fell. Mr. Crockford states that within the hour mentioned the paths and roads were like rivers, and drains were useless. The River Dee, in the vicinity of Gresford, overflowed its banks.

Travelling Research Fellowships in Agricultural Science.—The Ministry of Agriculture and Fisheries has been authorised by the Development Commissioners and the Treasury to award the following travelling research fellowships to research workers in agricultural science in the current financial year: (1) A Fellowship of £250 to Mr. F. L. Engledow, of the Cambridge University Plant Breeding Institute, for a visit to the United States to investigate American work on Barley genetics, cereal yield testing, and the quality, storage and production of Wheat. (2) A Fellowship of £50 to Mr. E. S. Salmon, of the South-Eastern Agricultural College, Wye, Kent, for a visit to Czecho-Slovakia to investigate the growing of Hops in that country. (3) A Fellowship of £60 to Dr. A. G. Ruston, of Leeds University, for a visit to Switzerland and Denmark for the purpose of investigations into agricultural costings. In addition to the above Fellowships, the Ministry has been authorised to award grants to workers in agricultural science in this country to enable them to represent Great Britain at International Conferences and Congresses. This is a new development and is very welcome in view of the increasingly high reputation which British agricultural research is attaining among workers in other countries. The grants for the present financial year, amounting to £175, have already been awarded to Sir John Russell, Professor R. C. Punnett, Dr. B. A. Keen, Mr. G. W. Robinson and Dr. N. M. Comber.

Sir Daniel Morris. — Formerly assistant director at the Royal Gardens, Kew, and always a devoted servant of the British Empire, particularly in connection with the development of economic plant crops in India and the West Indies—where he spent many years—Sir Daniel Morris, now spending the evening of his life at Bournemouth, has reached the advanced age of four score years. His many colonial and horticultural friends will be glad to learn that Sir Daniel is enjoying good health; he is President of the local branch of the Royal Colonial Institute, and on Empire Day presided over a very large assembly of young folks during the day and over a large and distinguished gathering at dinner at the Hotel Metropole, Bournemouth, during the evening. This gathering was under the auspices of the Hants and Dorset branch of the Royal Colonial Institute. At this gathering Sir Harry Brooking stated that the members had desired to invite subscriptions to a fund wherewith to show their high regard for Sir Daniel Morris and to mark the celebration of his 80th birthday. Sir Daniel in expressing his appreciation of the kindness thus shown, said that he would like the money to go to the "new premises fund" of the Royal Colonial Institute.

Appointments for the Ensuing Week—Tuesday, June 10: Jersey Gardeners' Society meeting. Wednesday, June 11; Royal Horicultural Society's Committees meet (2 days); Morley and District Paxton Society's meeting; East Anglian Horticultural Society's meeting; Sheffield Chrysanthemum Society's meeting. Friday, June 13: Royal Horticultural Society of Ireland Council meeting. Saturday, June 14; Glasgow and West of Scotland Horticultural Society's outing.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Rhododendron javanicum, of Blume; or The Beautiful Orange-coloured Rhododendron from Java.*—William Rollisson and Sons beg respectfully to inform the Nobility, Gentry, and trade, that they intend sending out, on and after Monday, the 18th June, fine healthy plants of the truly magnificent Rhododendron Javanicum, at 21s. per plant, the variety with beautiful orange-coloured flowers, as advertised in the *Gardeners' Chronicle* last autumn. W. R. and Sons beg to remark that their collector in Java gathered the seed from which their stock was raised, off plants of the orange-coloured variety, spotted with red, which he had seen in flower some time previously, and on this account W. R. and Sons can positively warrant them to be the genuine plant, as above described. This most beautiful, interesting, and dwarf-growing shrub is admirably adapted for planting out in a conservatory, or growing in pots in a greenhouse or cold frame, and our collector having found it upon the volcanic range of mountains in Java, 9,700 feet above the level of the sea, there is every reason to believe that it will prove a hardy plant, at least in some part of this country.—*Tooting Nursery, near London.—Gardeners' Chronicle (Advt.), June 9, 1849.*

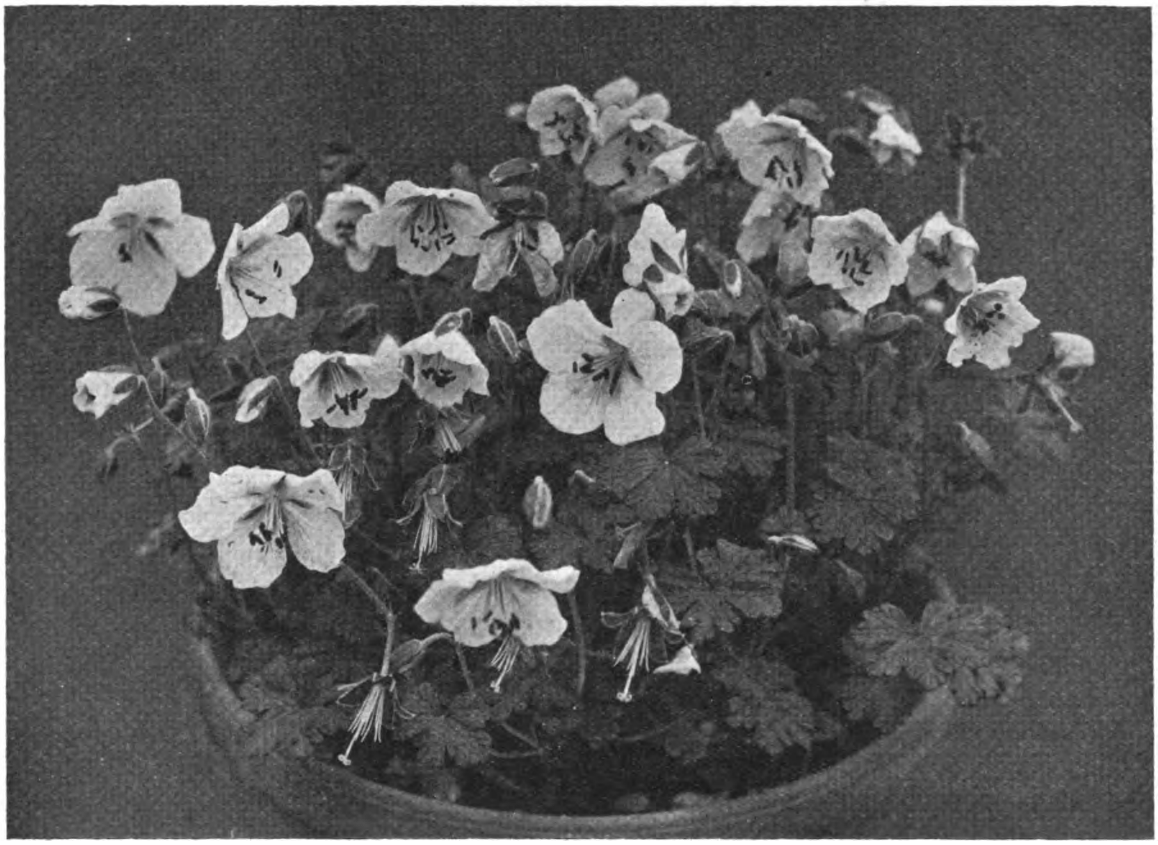

FIG. 143.—GERANIUM FARRER'S PINK.

R.H.S. Award of Merit, Chelsea Show (see p. 322).

NOTES FROM A WELSH GARDEN.

Even in a garden which, out of consideration for space, Rhododendrons are not made a prominent feature one may expect the members of this genus to command a goodly share of attention at this season. The most notable, perhaps, at the time of writing is R. oreotrephes, whose grey-green foliage is almost hidden by the wealth of blossom, the flowers being of that delicate shade of bluish-lilac which is always so pleasing in the light shade of open woodland. With double, fragrant flowers of a slightly warmer tint, R. ledifolium, var. plenum (often listed as narcissiflorum) is also very charming and one that can be relied upon to bloom regularly every year. So much can hardly be said of the type species, which here appears to be more susceptible to spring frosts and seldom carries a full crop of bloom. Even so, this species (sometimes called A. indica alba) with its large, pure white, deliciously-scented flowers and ample evergreen foliage is always worth a good place. It is quite hardy.

The quaintly pretty R. glaucum has been exceptionally generous with its bell-shaped blooms this year, and the colour of these is an unusually rich pink. R. punctatum is another evergreen dwarf species which might is more freely grown. It is, in my estimation, a much more beautiful shrub, both in flower and foliage, than most of the hybrids (R. Wilsonii, R. myrtifolium, R. arbutifolium and others) raised from it, and it never fails to produce its neat clusters of shell-pink flowers in the greatest profusion. R (Azalea) amoenum also stands out as a dwarf species of much merit, but the rather harsh crimson of its multitudinous flowers are the better for the companionship of plenty of green such as the woodland affords. All things considered there are few better yellows in this genus than the old R. flavum (A pontica), whilst among the various hybrids of the [mollis and sinensis class Anthony Koster is still prime favourite on our woodland slopes.

Dendromecon rigidum has just opened the first of its golden, Poppy-like flowers, and whilst this came through the trying winter unharmed a more remarkable survival is Fremontia californica which, though much more exposed, never lost a leaf and is now studded at every axil with a yellowing bud. With these is Solanum crispum, var. Glasnevin, which will soon be bearing a heavy crop of its bluish-purple flowers. The azure-blue Ceanothus thrysiflorus, grouped against the snow-like drifts of White Portugal Broom, creates an extremely telling, yet delicate, effect, and the rose-pink flowers which are adorning the naked branches of Cercis Siliquastrum are hardly less pleasing against a bank of Cytisus praecox.

In a cool bed of leaf-mould, mainly allotted to various Ericaceous subjects, Cyathodes ericoides has been in flower for some time, its waxen-white, tubular flowers having a sweet, Almond fragrance. C. robusta, a more upright and shrubby little plant with Pea-green, Heath-like leaves is also in bloom, and close to this is the vivid green mat of Claytonia australis closely set with almost stemless, milk-white flowers. A very charming little shrublet with reddish-bronze leaves and racemes of waxen-pink, carmine-tipped bells, and which is labelled Arctostaphylos myrtifolia (?) has been in flower since March. Gaultheria Veitchiana is abundantly furnished with racemes of white, and Leiophyllum buxifolium is asserting its right to a wider recognition than it generally enjoys by its crowded heads of scintillating pink-and-white blossom, attractive foliage and habit. The first blooms have already (mid-May) appeared on Daboecia polifolia to remind one that the various forms of this excellent species will henceforth not be without blossom until late autumn. Erica australis is still supremely beautiful and its flowering period will extend beyond that of E. mediterranea and continue until the first colour appears on the summer-flowering Heaths.

Aquilegias are for the most part ideal woodland subjects, and such treasures as A. alpina and A. Reuteri are now approaching perfection. Among the easiest to grow is A. elegantula (canadensis) with scarlet and yellow flowers on tall and stately stems, but A. formosa (arctica), which appears to be a form of the same species, is, I think, more lovely in flower and foliage. This latter, moreover, seeds true, a consideration one may be grateful for in the Columbines. Munstead White and various other forms of A. vulgaris in creamy white, blue, and wine-red, are all good until they deteriorate into headless effigies of their former selves, but the best whites and powder-blues of these are often fairly permanent. A. Helenae makes a tall and imposing sheaf of graceful foliage and blue and white flowers, which latter betray a close affinity to both the parents of this hybrid, A. coerulea and the very distinct Japanese species, A. flabellata.

Veronica Hulkeana is already displaying the full beauty of its two-foot sprays of flowers, and the more uncommon V. Fairfieldii, which might be described as a diminutive V. Hulkeana with a more upright habit and equally lovely blooms, was still earlier. Viola Munbyana has fully maintained the reputation for long and prolific blooming which it brought with it from the Grecian Alps. It is a cheerful little Pansy with blue-purple flowers, the vigour and easy temper of a Maggie Mott and a predilection to seed freely and truly. Draping a large rock, with its Pea-green foliage adorned with countless coronets of little golden flowers, that native of our limestone cliffs, Hippocrepis comosa makes good its claim for a foremost place among rock-garden plants, and a well-flowered specimen of Rosmarinus prostratus proves a good companion for this trailing Vetch.

Sedum ternatum, now a downy carpet of glistening white, is perhaps the best of its genus at the moment, the gorgeous S. compressum just going off and S. spathulifolium purpureum hardly as yet showing the gold above the mealy crimson of its fat rosettes. Here also on a sunny slope are the Erodiums, most charming of which already in flower are E. chrysanthum, E. chamaedryoides, E. c. rosea and E. trichomanefolium. Delphinium nudicaule is opening the first of its scarlet and yellow flowers. Pentstemon Davidsonii most gorgeous, if not also one of the most reliable, of the rock garden sorts, is a blaze of crimson brilliant enough to extinguish Armeria Vindictive. The somewhat hard tint of these is none the worse for the companionship of some soft and gentle blue, such as that of Veronica gentianoides or Phlox G. F. Wilson. Among other sun-lovers are Pentstemon Scouleri, P. Roezlii, and P. Bridgesii, Achillea Clavennae, A. Kellereri, Anthemis Aizoon, the dainty Alyssum idaeum and Androsace villosa.

Iberis Jordanii promises to uphold the good name of its race, and the Aethionemas, Warley Hybrid and the still more brilliant Warley Rose, will maintain generous masses of the loveliest pink until the Dianthuses come to hold the field. One cannot let the occasion pass without putting in a good word here for Arenaria montana, var. grandiflora, which seeds all over the place without ever abusing the licence willingly granted to so delightful a plant. A. Ledebouriana is a little gem of the utmost charm, A. juniperina is hardly less attractive, and then there are the cushiony mats of A. purpurascens which are already studded with the rosy knobs which open into singularly dainty, rosy-lilac blossoms.

Potentilla tridentata is a neat little bush starred all over with snow-white blossoms. P. rupestris, with tall straw-coloured stems, branching and elegant, a distinct and handsome foliage and white flowers, is looking singularly healthy on a very dry wall top, and another species always at its best in May, though it blooms all the summer, is the yellow-flowered P ambigua. The earliest to show colour of our shrubby Potentillas is invariably P. fruiticosa argentea nana, a low-growing, silver-leaved variety of the rarest charm with flowers of a deep, full yellow. *A. T. Johnson, Talycafn, N. Wales.*

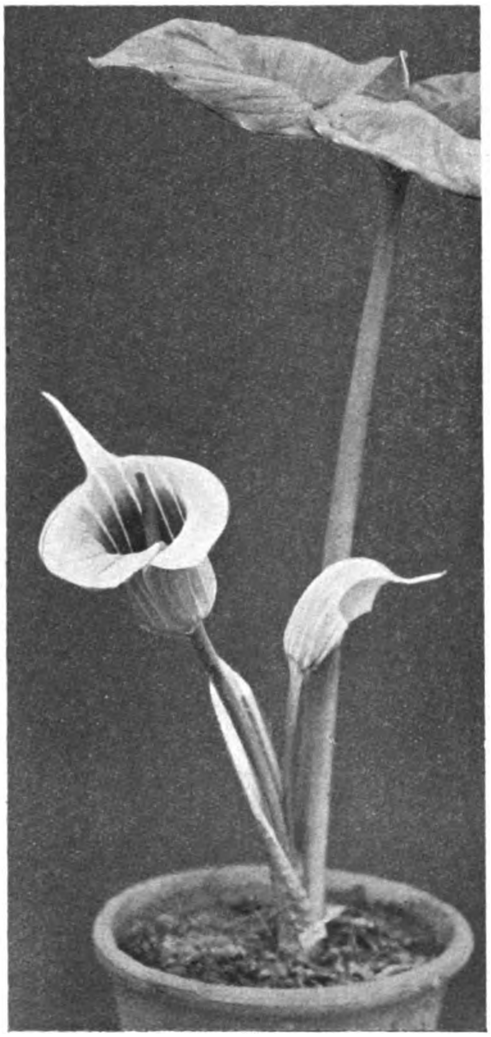

FIG. 144.—ARISAEMA CANDIDISSIMUM.
R.H.S. Award of Merit, Chelsea Show (see p. 322).

NOTES FROM WISLEY.

In some gardens one may come across one or more of our rarer wild plants in cultivation, but it is seldom that one finds any of the commoner varieties, with the possible exception of Primroses and Bluebells, purposely cultivated, since they are generally ranked as weeds and treated as such. There are, however, many common wild plants which, when appropriately massed in the wilder parts of the garden, will give results which are equal to and sometimes even superior to those obtained with recognised garden varieties. An example of this is to be seen by the round ponds at Wisley, where Cardmanine pratensis (the Cuckoo flower or Shepherd's Smock) has been encouraged to spread and is flowering profusely. The double-flowered form is also growing there in large numbers and is increasing rapidly, since almost any green part of the plant broken off is capable of rooting and of producing new specimens. The Marsh Marigold is also flowering well, as is the larger-leaved Caltha polypetala. Another wild plant with which some parts of the wild garden are now richly purpled is the green-winged Orchis (O. Morio).

The [Gunneras on the bank of the lower pools of the rock garden are unfolding their enormous leaves. It is curious that the leaves of many of the water and waterside plants are red or bronzed when they first expand. This is seen, for example, in the case of Osmunda regalis, Nymphaea Gladstoniana and Rodgersia podophylla, which is particularly attractive at this stage. The Skunk Cabbage (Symplocarpus foetidus) is also putting forth handsome leaves like those of a giant Funkia, which help to atone for its somewhat repulsive inflorescence, which has now died down.

Many plants of Primula japonica, of which there is an extraordinary number in the wood, are nearly in bloom. On the rock garden a conspicuous object is a patch of the bright Petunia-purple-coloured Aubrietia Magician. Almost as arresting is a large bed of the red-flowered Saxifraga decipiens bathionensis. A sport occurred among these plants last year, a portion of a plant having red flowers chequered with white. This was propagated and the resulting plants bear a remarkable assortment of flowers, some being pure white, some red, some red with white spots and others white with red splashes. In one case one half of the flower is red and the other half white.

In one part of the rock garden the Forget-me-not flowered Anchusa myosotidiflora is spreading rapidly. It is very pretty before the leaves become too large and is very effective in association with yellow Primroses and brown Bulgarian Cowslips. Numerous species of Viola are flowering here, such as our native V. canina, of which there are some very large-flowered forms, both blue and white. V. cucullata alba is a very handsome white-flowered Violet which grows very freely and is quite showy in the mass. The flowers of V. delphinifolia are rather insignificant, but the petals on close examination reveal delicate veining. The noticeable feature about this plant is the much divided foliage. Other plants in flower on the rock garden include Macrotomia echioides whose yellow flowers lose their brown spots as they age, and Oxalis Acetosella rosea, of which there are some charming patches scattered in among the rocks.

In the Alpine House are some good pans of the very pretty, lilac-flowered Anemone cornubiense and of A. nemorosa Blue Bonnet. A plant of Saxifraga irrigua has been in flower since April 14 and seems likely to remain good for a week or two more. This species has hairy, palmate leaves, and erect white flowers. A Buttercup, Ranunculus millefoliatus, is also blooming. The flowers are extremely like those of our wild R. acris; the foliage, however, is very finely divided. Several Erodiums are in flower in this house, among which are E. trichomanifolium with delicately veined, pinkish flowers; E. hymenodes, with red blotches on two of the five white petals; the dwarf E. Salymanii with pink flowers; and E. absinthoides whose flowers are nearly white; while in the open the pale sulphur-coloured blooms of E. chrysanthum are opening.

In the frames near the Alpine house many Tulip species have been flowering well. Most of these have passed their best, including the glorious T. Eichleri with its huge red flowers, and the scarlet and black T. linifolia. The margins of the leaves of the latter are undulate, though not to such an extent as those of T. Kolpakowskiana. Of those not yet in full flower, T. strangulata and T. primulina are coming on well. Of the rock garden shrubs Arctostaphyllos nevadensis, a very pretty pink-flowered, spreading Ericaceous plant, and the deliciously scented Viburnum Carlesii are flowering. *J. G. White.*

INDOOR PLANTS.

Hoyas are climbing or trailing evergreen shrubs bearing thick, opposite leaves, and well-grown specimens produce flowers in umbel-like clusters very freely during the summer. The plants are of comparatively easy culture; they require an intermediate warm temperature in their growing and flowering season with plenty of light and air free from draughts. In winter they should be allowed to rest in a temperature of about 50° in a dryish place, giving the roots just sufficient water only to keep the shoots from shrivelling. Some of the species are used for covering walls in very warm houses.

Hoyas do not require much shade or a close atmosphere. The old flower stalks should not be cut off as the flowers of the following year are produced on them, as well as on the young wood, when the latter is in strong growth. Sometimes, when the plants attach themselves to a moist wall, the roots in the soil die away, yet the plants continue to do well and make fresh roots when started again.

Hoyas may be propagated freely from cuttings or layers. Cuttings made of half-ripened wood should be inserted in the spring or later in the year in sandy soil and placed in a frame or hand-light with a moderate amount of bottom heat. Shade the cuttings lightly and water them carefully until they are well rooted, when they may be transferred to larger pots or pans and gradually hardened off. In layering the plants place good-sized shoots in pans well drained with clean crocks, and a layer of rough siftings or Sphagnum moss on the crocks to prevent the fine soil clogging the drainage. Fill the pan with sandy soil and press it down moderately firmly. Peg the layer firmly to the soil. Give the latter a moderate watering and do not allow the soil to get dry before the layers are rooted. The soil for potting should consist of a mixture of light, turfy loam, fibrous peat and silver sand, with a small amount of pounded brick, charcoal and lime rubbish added. Before planting Hoyas in permanent positions remove the old soil from the roots and make a fair-sized pocket, well drained with clean crocks, brick or lime rubbish. Fill the pocket with fresh soil in a moderately rough state, removing the finer particles by sifting or other means. Hoyas are useful plants for growing in small houses and may be cultivated easily by amateurs in small houses, as they do not take up a large amount of room and flower freely when quite young, lasting some considerable time in bloom. The wax-like texture of the flowers appeals to everyone and Hoyas are interesting plants to cultivate. The cut blooms make very pretty buttonholes, and may be used for the making of sprays or other floral designs.

The following species are most generally grown:—H. carnosa (the Wax Plant), a twiner and climber attaching itself to supports by its aerial roots; it sometimes becomes attached to a wall like Ivy and grows freely when planted out. This is a fine species and the one most frequently grown and does well either grown in a pot or planted out. The colour of the flower is pinkish-white. H. carnosa variegata is a form of H. carnosa, with bright leaves edged with white and a pinkish shade. It is an attractive, free-growing variety and quite distinct. H. bella has white flowers with rosy-crimson centres, and wax-like in appearance. It is a slender-growing plant requiring a warmer part of the house than the H. carnosa. This species is well adapted for growing in baskets or over pieces of dead Tree Ferns placed in the middle of pans or pots. The plant is very compact in habit and very free-flowering. H. Paxtonii is very similar to H. bella, both in growth and habit, and requires similar treatment. H. globulosa has pale straw or cream-coloured fragrant flowers disposed in globose umbels. The corona is pink at the base. The flowers of H. imperialis are reddish-brown, very large and of waxy substance; it is a very attractive plant. H. australis has white flowers tinged with pink; this is a free-flowering species. All the Hoyas enumerated are of easy culture and may be grown in a temperature about 65° to 70° with sun and air in the summer. *John Heal, V.M.H*

ORCHID NOTES AND GLEANINGS.

LAELIO-CATTLEYA FREDA.

The fine specimen of this new cross between Cattleya Mossiae Wageneri and Laelio-Cattleya Germanica (C. Mendelii × L.-C. Cappei) shown by Lt.-Col. Sir Geo. L. Holford, C.I.E., K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander) on May 12, is a remarkable example of careful work in hybridisation, the individual flowers surpassing the basic white parent C. Mossiae Wageneri in every respect and taking the colour from the small-flowered Laelia cinnabarina which, with C. Warscewiczii, are the parents of L.-C. Cappei.

The colour of Laelio-Cattleya Freda is Apricot-yellow with a reddish flush and light orange colour in the lip, the base of which shows small purplish lines, as in forms of C. Mossiae.

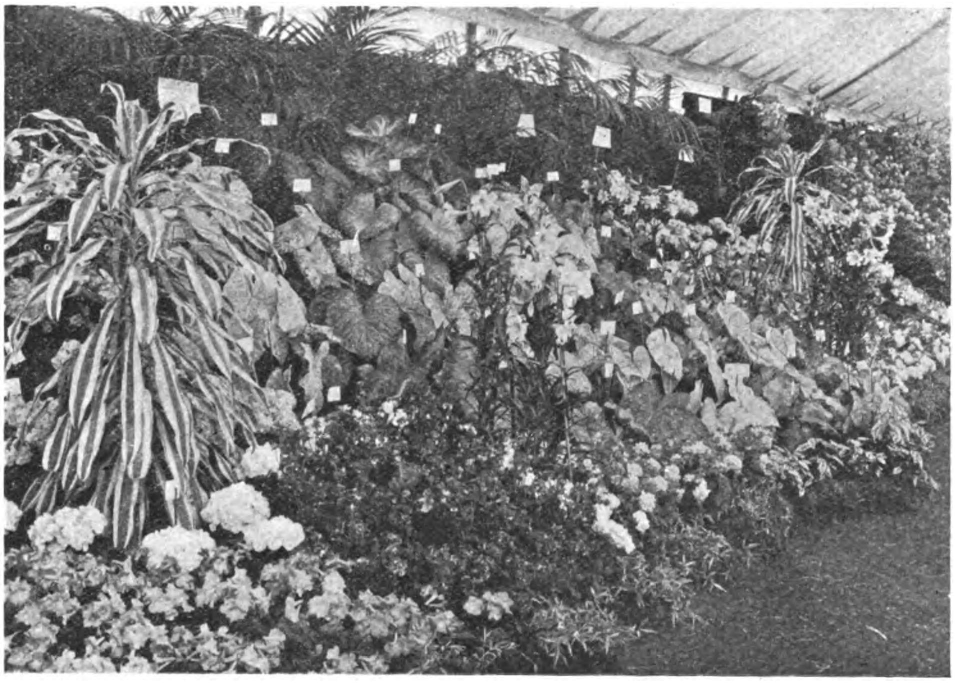

FIG. 145.—MESSRS. JOHN PEED AND SON'S EXHIBIT OF STOVE PLANTS AT THE CHELSEA SHOW (SEE P. 328).

NEOMOOREA IRRORATA, ROLFE.

To the note on Moorea irrorata, Rolfe, accompanying the illustration of the fine specimen at Glasnevin, May 3, p. 251, it should be added that the author after giving the generic name Moorea discovered that the name had been previously used for a Pampas Grass as early as the year 1855. Therefore Mr. Rolfe amended it to Neomoorea irrorata, and under that name the First Class Certificate given to it at the Royal Horticultural Society when shown from Glasnevin, March 22, 1892, is recorded in the list of awards. It is a pity that an oversight in considering the original name should render a second name necessary, but once authoritatively recorded, it has to be retained. *J. O'Brien.*

BULB GARDEN.

DARWIN AND MAY FLOWERING TULIPS.

The philosophically-minded gardener may find some solace for seasonal disappointment in speculating upon the sequence of causes initiated by adverse weather which culminates in the failure of this or that plant. For example, this year by common consent Darwin and Cottage Tulips have been as poor and fugative of flower as last year they were rich and long lasting. The torrential rains which fell just as they were opening gave the flowers their *coup de grace*, beheading them out of hand. But before the rains, even when the flower buds began to show, it was clear that the flowers were not going to be of the best. Something had undoubtedly upset them during the long spells of changing winter weather. Perhaps it was the sodden condition of the ground. If so an examination of the root system might reveal signs of abnormal growth. Because the buds are preformed in the planted bulbs it does not follow that they are immune from any adverse soil influence, and this year's experience suggests the advisability of trying the effect of a little slow acting phosphatic manure sown with the bulbs at planting time.

Of all the varieties of Darwin or Cottage Tulips grown in my garden only one, the fine canary-yellow Cottage Tulip, Inglescombe Yellow, withstood the heavy rain. It is true that this variety is just a little later than most Darwins. I do not think, however, that this is altogether the cause of its superior resistance to the battering effect of the rain, but believe that it owes its superiority in this respect to the possession of a somewhat more elastic, flower stalk. *N.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park Reigate.

Cattleya and Laelia.—Such autumn-flowering Cattleyas as C. labiata, C. Gaskelliana, C. Bowringiana, C. Dowiana and its variety aurea together with many of their hybrids, are commencing to make new growth and should be placed in the lightest and warmest position possible in the Cattleya house; the supply of water at the roots should be slightly increased, taking care that the compost becomes dry between each application. Plants of C. gigas in its many varieties are now growing freely and should be afforded a light position near the roof glass and not given too much water at the roots until the flower sheaths appear in the new growths. C. Schröderæ and C. Lawrenceana, after passing out of flower, should be subjected to a short season of rest by placing them in the coolest part of the house, and keeping them rather dry at the roots. Any plants of C. Mendelii, C. Mossiæ and their hybrids that have failed to produce flower sheaths may be repotted at this period. The flower spikes should be removed from weakly specimens in order to throw all the energy of the plants into the growth.

Mexican Laelias.—The present is a suitable time to afford fresh rooting materials to any of these plants that were not attended to in this respect earlier in the year. Pans or Teak-wood baskets are the most suitable receptacles; ample drainage should be employed and coarse Osmunda-fibre used as a rooting medium. The principal factors in the cultivation of Mexican Laelias are plenty of light, air and moisture during their season of active growth, and a decided period of rest after the pseudo-bulbs are fully developed. Where a separate division is set apart for this class of plants, it is advisable to give the house a thorough damping down when the blinds are removed in the afternoons; the plants should receive all the light possible, short of scorching the foliage. Close all the ventilators when raising the blinds, and allow them to remain closed until the evening, when they should be again opened an inch or two at the top to allow the superfluous moisture to escape. When the roots have penetrated well into the compost they should receive liberal supplies of water until the season's growth has fully developed, when the plants should be given a decided rest.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Auriculas.—As these plants pass out of flower they may be lifted, divided and replanted, keeping the lower leaves close down to the soil. If replanting on the same site add a liberal quantity of good compost.

Annuals.—Those kinds of annuals which have been sown on the site where they are to flower will need thinning finally, after which a few Hazel twigs may be inserted amongst them to support the shoots. It is a good plan to sow a few boxes of annuals at the present time and place them in a shady position to serve for filling up possible gaps caused by failures later. Beds of annuals for autumn-flowering may also be sown on the space left vacant by the removal of Asters, Stocks, Marigolds, etc., now planted out.

Nasturtiums.—Although treated as hardy annuals these highly decorative plants are not quite hardy, and if sown too early are liable to destruction by late frosts. In sheltered positions and on light soils both the dwarf and climbing varieties may be sown now, as they will soon germinate and make rapid progress.

Summer Bedding.—Very decorative effects may be obtained in a formal garden containing four or more beds by growing two varieties of plants as dwarfs and standards in both cases. For example, Heliotrope and Calceolaria amplexicaulis may be utilised in this way, one bed being planted with Heliotrope naturally grown and overhung with standards of C. amplexicaulis, the alternate bed planted with the Calceolaria grown naturally and overhung with standards of Heliotrope. This scheme carried out in a formal garden containing four or eight beds produces a most charming effect. Much of the summer bedding usually follows late flowering Tulips, and these remained in beauty till a late date this season, hence the completion of summer bedding will probably be deferred in a good many gardens. Care should be taken, however, that plants grown in pots for this purpose do not suffer from this cause. Where there is any danger of them starving in their present pots they should receive liberal supplies of water and liquid manure at the roots.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain Brocket Hall, Hertfordshire.

Early Pot Peaches and Nectarines.—The fruits of early pot Peaches and Nectarines will, by this date, be ripening. Discontinue the use of manure when it can be plainly seen that the fruit is in its last stage of maturity, and withhold excessive supplies of water; at the same time the trees should not be allowed to suffer through lack of moisture at the roots. Reduce the amount of syringing as ripening proceeds, and ventilate the house freely whenever the outside conditions will allow, leaving the top ventilators open a little at night, when the temperature should be between 62° to 65°. Use a little warmth from the hot water pipes whenever the nights are cold. The fruits should be exposed fully to the sun to obtain the best possible results in colour and flavour of the fruits.

Succession House.—Peaches and Nectarines in the second-early house will now be passing through the stoning stage, and the grower should give the trees a little extra care. As soon as the stones have formed, feed the trees with both liquid manure and a concentrated fertiliser. Syringe the foliage twice daily during hot, dry weather, but not so freely in dull, sunless weather. Admit plenty of air to the house on every possible occasion. Leaves that are shading the fruits should be arranged on one side to allow the latter to be fully exposed to the sun. Warmth from the water pipes should be reduced to a minimum, using only sufficient fire heat at night to promote a buoyant atmosphere.

Young Vines.—Vines planted this season are growing freely, and every attention should be given them to ensure a well-ripened, short-jointed rod. In planting young vines I recommend laying the roots out evenly near the surface of the border. Young vines must never be allowed to suffer for lack of moisture; on the other hand water should not be given in large quantities until such time as the border is well filled with roots. Frequent light waterings are best, and in watering the operator must be guided by the outside conditions. Young vines should be stopped at intervals to cause the buds on the lower portion to develop and enable the rod to become well ripened and matured. As the season advances, syringing the young vines should be discontinued; damp the floors only and admit air more freely by the front ventilators to promote hardy, well-ripened growth.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Strawberries.—Strawberry plants are looking very promising and have made free growth and strong flower trusses. A sharp watch should be kept for slugs as these are very prevalent and active this season owing to the continued wet weather during May. The beds should be dusted frequently with soot, as this is a deterrent to the slugs and a good stimulant to the plants. The beds should be hoed on frequent occasions right up to the time of strawing them for the fruiting season, and it will then be well to go over the beds carefully in search of slugs early in the morning and in the evening. It is a good plan to support the fruit-trusses with short Hazel twigs taken from an old broom; if the weather should prove wet during the fruiting season the supports will serve to keep the berries drier and also out of reach of slugs, etc. Runners will quickly form when the plants are fruiting, and if these are required for propagation lift them carefully and lay them on the plants themselves, so that they are not trodden on in the process of picking the fruit. Only a sufficient number of the best runners for the purpose need be retained; the others should be cut off.

Raspberries.—All suckers coming up between the rows should be dug out, retaining those growing close to the fruiting canes for tying in later when they are mature. Retain only the stronger, if there is a choice, and pull out the weaker ones.

Gooseberries.—Keep a watchful eye on Gooseberry bushes for the sawfly, and, as soon as the pest is noticed, syringe the bushes with an insecticide, and also hand-pick them. It is surprising how soon sawflies will strip the bushes of the foliage if measures are not taken to destroy them.

Wall Trees Under Copings.—Where glass copings are erected over the trees, special attention should be paid to the roots as regards moisture, therefore, the borders should be examined frequently to see if they are dry. Give the roots a thorough soaking close to the wall, and syringe the branches daily during bright weather, especially towards the top of the wall where the growth is close to the glass. The panes of glass of some copings may be removed during the summer, and this is certainly advisable, and greatly minimises the risk of the trees becoming infested with red spider. Liquid manure is a valuable aid to trees carrying heavy crops and should be applied just when the fruit is swelling, up to the stoning period.

PLANTS UNDER GLASS.

By F. J. Clark, Gardener to Lt.-Col. Sir George Holford, Westonbirt, Tetbury, Gloucestershire.

Nerines.—It is essential that the bulbs of these plants should be fully exposed to the sun, in a position near to the roof glass, where they will not get a drop of water throughout the summer. Unless the bulbs are very thoroughly ripened they will not flower freely. During winter every encouragement should be given to promote leaf growth, which should be carefully preserved, and be allowed to ripen with the bulbs after water has been withheld. Nerines, unlike most other bulbs, resent re-potting, and beyond an annual top-dressing in the autumn, they should hardly be disturbed until the bulbs are almost ready to burst their pots.

Treatment of Chrysanthemums after Potting.—After potting see that the sticks supporting the plants are of sufficient strength to preserve them from injury by wind, until they can be permanently staked. Syringe the plants overhead several times a day for the first week or so. Should dull or showery weather prevail they will not need water at the roots for perhaps a week; on the contrary, if sun and drying winds prevail the plants will need copiously watering in about three days; the grower must be guided by atmospheric conditions and also by the state of the soil at the time of potting. The first actual watering after potting should be thorough; the pots should be soaked twice or three times to ensure the whole of this soil, including the old ball, being moistened. The site chosen for the summer quarters of the plants should be in an open position exposed to full sun, and yet, if possible, sheltered to some extent from west and north-west winds, which often prove destructive to the plants in late summer. Boards upon which the pots may stand should be laid down firmly and level in rows at least five feet apart. The plants may thus be readily attended to in the matter of watering tying, disbudding, etc.

THE KITCHEN GARDEN.

By WALTER Y. STAWARD, Gardener to Mrs. JOHN FEENEY
The Moat, Berkswell, Warwickshire.

Lettuce.—Young plants of Lettuce are ready for transplanting from the seed-bed. Set them closely so that every other one may be cut before the others require more room. Another sowing of seeds should be made to raise plants for a succession.

Runner-Beans.—As soon as seedling Runner Beans grown in boxes have made two inches of top growth, keep them on the cool side and expose them fully to the light and air to prevent them becoming drawn. As soon as they are ready they should be planted out into the ground that has been prepared for them.

Cucumbers.—Outdoor Cucumbers may now be planted in the open. Prepare special soil for the plants and arrange it in a mound where the plants are to be set. Attend to the stopping and thinning of the shoots and never allow the growths to become crowded.

Salads.—To ensure fresh supplies of Mustard and Cress make weekly sowings in a shaded situation. Lettuce seeds should also be sown in quantity and early seedlings planted out, allowing the plants plenty of room to develop. Webb's Wonderful and All the Year Round are two reliable varieties.

Root Crops.—Carrots, Beetroots, and Parsnips should be thinned to a reasonable distance apart when they are large enough to handle. Keep the soil moved by the hoe to keep weeds in check. A dressing of soot will be beneficial to the plants after the seedlings have been thinned.

Garden Swedes.—Where a good keeping vegetable is required throughout the winter and early spring, the garden Swede is to be recommended, for this plant withstands severe weather better than the Turnip. The seeds may be sown now up to July in rows made 30 inches apart.

New Zealand Spinach.—In gardens where the soil is very light and porous New Zealand Spinach may be relied on to produce a regular supply of leaves during the hot weather Seedlings raised from seeds sown in boxes sometime ago are ready for transplanting. The Spinach has a spreading habit, and plenty of room should be allowed between the lines and the plants in the rows.

Tomatos.—Outdoor Tomatos may now be planted in any vacant spaces on a south wall, or on a warm south border. Set the plants in lines and place a stout stake to each. Disbud and tie the shoots in the usual way.

HARDY FLOWER BORDER.

ANEMONES.

So varied is the flowering season of Anemones that some member of the genus is in flower from February till late autumn. The earliest to flower is A. blanda, a neater and more compact grower than its congener A. apennina. It also has larger flowers ranging from soft blue through shades of pink and purple to pure white.

Almost at the same time, A. Hepatica comes into flower. This is one of the commonest of our woodland Anemones yet one of the most charming, and its clear, blue, starlike flowers appear in early spring in company with the Snowdrop. Once established this plant should not be moved as it dislikes having its rooting system disturbed.

A. sylvestris which flowers still a little later is a fine plant with delicate, fragrant flowers well suited for a cool corner of the rock garden where it can be given plenty of freedom. A. Halleri and A. Pulsatilla require entirely different treatment and thrive best in an open, sunny position; the latter is widely grown and has almost become naturalised.

Several species of this useful genus have long been favourite florists flowers and have been developed until a very wide range in variety of colour, size and shape exists. Not only do these provide highly decorative material for massed colour effects in spring, but they are also invaluable for cut flower purposes and their comparatively easy culture makes them very desirable plants; several of the Anemones are cultivated as market flowers.

Probably the most valuable of all Anemones is A. japonica of which there are many very fine garden forms, and these carry the flowering season of the Anemone well into the autumn. While most of the earlier-flowering species thrive in light soils A. japonica prefers a moist, retentive loam. *W. Auton.*

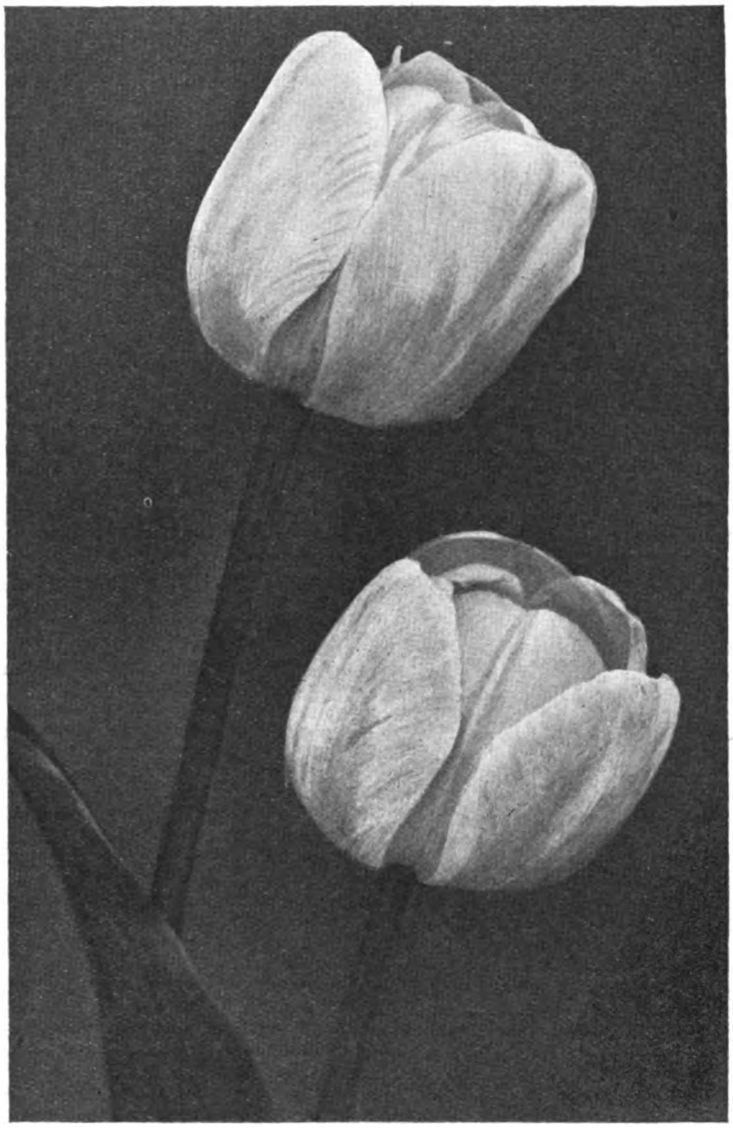

FIG. 146.—TULIP AMBER
R.H.S. Award of Merit, Chelsea Show (see p. 322).

RANUNCULUS GRAMINEUS AND R. ALPESTRIS.

SEEING these plants recently in fine condition, I was much impressed by their clear beauty, more especially with that of R. gramineus; the grass-like foliage of the latter plant is a delightful foil to the clear Buttercup-yellow flower, which is very large in comparison to the plant; the latter grows from nine inches to one foot in height.

The white flowers of the somewhat prostrate R. alpestris are a very pure tone and contrast delightfully with the leaves, which are like those of the Buttercup (R. bulbosus). This Ranunculus, which is a dwarf plant of only a few inches, is, I believe indigenous to Scotland, while R. gramineus is a rare Welsh species. Both are fairly easy to cultivate if grown in a deep loam add in fairly moist condition. *R. E. Arnold.*

RHODODENDRONS.

(*Continued from p.* 306.)

To the naked eye three kinds of under-leaf surface occur. It may be glabrous, or scaly, or hairy. But when the scaly or hairy covering is carefully examined under the microscope, and still more when its development is followed out, there are interesting revelations. One unexpected result of this brilliant research was that there are two kinds of indumentum, which to the naked eye, look alike, namely, simple, composed of one kind of hair only, and compound—or as Professor Balfour called it, bistrate, composed of two kinds. Into these we need not enter. The ordinary man is not concerned to classify his plants; though the would-be collector must certainly acquaint himself with the chief types. It will be sufficient to note the profound truth involved in this system—assuredly a natural one; namely, that leaf indumentum, far more than any other single character, is a measure of climate and habitat; so that our Rhododendrons being classified according to leaf structure are also roughly grouped in accordance with their climatic and geographical distribution.

Roughly, I repeat. Balfour did not live to complete his work; but the principles he laid down are likely to be followed in any future classification. Only in detail are changes probable as fresh relationships are established and new sections founded to include the exceptional species which continue to arrive.

On the other hand there is no doubt that in view of the known variation of Rhododendrons, he made too many species out of the material; a venial error which is not likely to be repeated by his successors. Though ultimately it is the personal equation which decides whether a "species" is "true" or not, these idiosyncrasies tend to run in "schools" and the tendency now-a-days is to cut down drastically the devastating flood of species. Balfour, grouping his plants according to the nature of the leaf indumentum (and taking into consideration other characters) arranged them in about fifty sections, each section being named after the longest known species; and the majority of known species were included in this classification. Thus we have the Falconeri, Thomsonii, Maddenii, and Lapponicum series. Unfortunately he did not not define the limits of all his sections, and they remain for the present more or less disconnected groups of species segregated round certain well-known types. What he did do, however, was something even more valuable, he was able to show the close relationship—yet definite divergence—of certain 'phyla' within his as yet undefined series. Thus in the Neriiflorum series we have a phylum, Neriiflorum itself, as well as the Sanguineum and Haematodes phyla. It is convenient to refer to the species grouped round, say, R. Falconeri, as the "Falconeri" Rhododendrons, or more shortly as the 'Falconeris;' and this procedure I propose to adopt.

The distribution of Rhododendron provides an interesting study. Through all the hundreds of species there runs a certain family likeness; and in no respect do they resemble one another more closely than in their seeds. All have approximately the same seed dispersal mechanism; hence in the fierce competition for dispersal all have equal opportunity. Since the seeds are always wind borne, naturally we should expect to find Rhododendrons widely distributed. As a genus, this is true; but the species, as a rule, have a rather limited range, though there are, of course, exceptions. This localised distribution is much more conspicuous in the case of species found at the great Rhododendron foci, than in the case of those found in outlying districts. For example, R. ponticum, found on the fringes of the Rhododendron tenements, occurs in Portugal, in Asia Minor, and in Central Asia (Trans-Caucasia), while R. catawbiense from North America is a closely related species. R. Smirnovi is found in Asia Minor and in Central Asia; while the distribution of R. lapponicum is practically circumpolar. Rhododendrons are confined to the northern hemisphere. The only exceptions are those which, following the East Indian arc, appear in the big islands south of the Equator; one species (R. Lochae) even reaches so far as the mainland of Australia.

There are no Rhododendrons in Africa, South America or New Zealand. In the northern hemisphere, however, they are very unequally distributed, the vast majority being confined to the Eurasian continent, and even to a particular part of that. North America has sixteen species (Azaleas included) and Europe (conventionally considered apart from Asia), four. The greatest number of species are found in the Himalaya and in the mountains of far western China, whence they spread southwards by way of Indo-Malaya to the East Indian Archipelago. A second focus is found in north-central China, extending thence southwards into the hill country south of the Yangtze. A third belt extends through eastern Siberia, Manchuria and Korea, and passing through Japan reaches the East Indies by way of Formosa.

If we regard Sino-Himalaya as one great focus, we see how the species tail off in every direction, except southwards; in which direction they remain a characteristic feature of the mountain vegetation even south of the equator. The north-central China nucleus is similarly concentrated in a comparatively small region, but is continuous with the Sino-Himalayan association to the west and the Manchuria-Japan-Formosa association to the east. Indeed, there are no obscure problems of distribution requiring the assistance of geological intrigue to elucidate them. The distribution of Rhododendron is continuous, and in that respect simple. In considering detailed problems of geographical distribution, however, we must first purge our minds of political frontiers; remembering that it is not artificial boundaries, but physical obstacles and change of climate which with other natural causes, limit the area occupied by a given species. Politicians fix the boundaries of states; they cannot fix the limits of a flora. For example, an entirely false impression may be conveyed by the information that a species is found in Burma and also in China; or is common to India and China. "China" turns out, on further enquiry to be Western Yunnan. Now part of western Yunnan and Upper Burma have a similar climate, and allowing for differences of altitude, the same flora extends over both. North-eastern Yunnan and South-western Yunnan on the other hand, though both "China," have different climates, are separated by formidable and effective barriers and have, as a matter of fact, different floras.

Similarly "India" may mean the Sikkim Himilaya which has one flora, while "China" means North-west Yunnan, which has a somewhat similar flora, under the same conditions. It is therefore necessary to use the names of the recognised floral regions when dealing with problems of geographical distribution, employing political states as known terms in the definition.

So far as Rhododendrons are concerned, we have to deal with five out of the fourteen floral regions into which Drude divided the world, namely: (i) northern; (ii) central Asian; (iii) Mediterranean and Orient; (iv) Indo-Malayan; and (v) Eastern Asiatic. Let us see how far the distribution of Rhododendrons conforms to this arrangement.

(I) The Northern Region comprises the Arctic, Europe—except the Mediterranean countries—Asia as far south as the 50th parallel, most of Canada, and the United States as far south as the 40th parallel and including the New England States. This region is poor in Rhododendrons. It includes the four European species, fifteen in America and two Arctic.

(II) The Central Asian region defines itself—Turkestan, Mongolia and Tibet. It is even poorer in Rhododendrons than the last—R. Smirnovi, R. Ungernii, R. ponticum and perhaps one or two 'Lapponicums' in Mongolia. The few Kansu species would also come in here.

(III) The Mediterranean and Oriental region includes Asia Minor, Persia and the Panjab. It is another arid region poor in Rhododendron and contains much the same species as the last.

(IV) The East Asiatic region comprises the greater part of China, except the extreme west and south of Yunnan, with Korea and Japan; the eastern end of the Himalaya also belongs here. This region is immensely rich in Rhododendrons and shares with the next the bulk of the species.

(V) The Indo-Malayan region comprises peninsular India (except the Panjab), Ceylon, Burma, Assam, western and southern Yunnan, Indo-China, and the East Indies from Formosa to New Guinea and the mainland of northern Australia. This region includes the least explored Rhododendron areas, and is perhaps as rich in species as, or even richer than, the last.

It will be instructive to follow out the distribution of a few of Balfour's sections. To begin with we find certain sections of world-wide distribution. "Ponticum," for example, has three species in N. America (one on the Pacific coast and two on the Atlantic), one species in the Caucasus and one (R. ponticum itself) in Portugal, Asia Minor and Caucasia. The discontinuous distribution of R. ponticum itself, which does not now occur in the Alps, is more apparent than real; for in the Pleistocene of the Innsbrunck district as well as in the islands of the Aegean, it has been found in a fossil state. Series 'Taliense' occurs right across the main Rhododendron belt of Asia from Transcaucasia, by the Himalaya and China, to Japan. The close relationship of the Himalayan area to Japan is otherwise shown by the distribution of such series as 'Triflorum' and 'Campanulatum.' The former are widely distributed along the great east-west belt; the latter has three Himalayan representatives and one Japanese, but none in between.

There are, however, several small sections, confined to the Himalaya, for example, Cinnabarinum (three species), Griffithianum (a monotypic series) and Cammeliaeflorum (three species); while most of the baker's dozen of 'Arboreums' are confined to the Himalaya and peninsular India, whence they extend south as far as Ceylon, barely reaching China with R. Delavayi only. It is when we come to the Burma-Yunnan ranges that we find endemism in whole sections. Clearly they form both the link between the Himalayan area and the central China area, and a bridge between the East Asiatic and Indo-Malayan area. But the Burma-Yunnan ranges also form a wedge, splitting open and keeping apart the Himalayan area from its Eastern extension. Six large phyla, representing about a hundred species, are confined to the Burma-Yunnan ranges, namely Sanguineum, Haematodes, Neriiflorum, and Forrestii (all of the Neriiflorum series), Brachyanthum, and Saluenense. The Stamineum series, characteristic of the Burma-Yunnan ranges, extends on the one hand eastwards into China and on the other southwards into Malaya and the Indies. 'Irroratum' is another typical Indo-Malayan section reaching from the Burma-Yunnan area eastwards into China and southwards to Malaya, where the species are a characteristic feature of the rain forest.

F. Kingdon Ward.

(*To be continued*).

TREES AND SHRUBS.

FORSYTHIA OVATA.

This native of the Diamond Mountains of Korea, and in its range the most northern of all the species of this genus, was introduced by the Arnold Arboretum from seeds collected by Wilson in 1918. We learn from the *Bulletin* (X, 2.) issued by the Arnold Arboretum, that a plant of this species flowered slightly last year, but by the middle of April this year was thickly covered with flowers which opened about two weeks earlier than those of Forsythia Fortunei or its hybrids.

This promises to be an extremely valuable introduction as it will be possible to grow it much further north than any of the other species of the genus, and in Massachusetts the flower-buds will probably never be injured as those of other species often are, especially those of the hybrid F. intermedia of which several forms are in cultivation. These are the result of crossing Forsythia suspensa var. Fortunei with F. viridissima which is the most southern and tender species. As a flowering plant one of these hybrids called spectabilis, which originated in Germany, is the handsomest of all Forsythias, but in winter too many of the flower buds are killed.

In the Arnold Arboretum Forsythia Fortunei can be successfully cultivated but in the north it should be replaced by the Korean species. F. ovata is a large shrub with light yellow branches, broad, long-pointed, coarsely toothed leaves from four to five inches in length and from three to four inches in width, and clear Primrose-coloured flowers smaller than those of F. Fortunei or any of the forms of its hybrid. This species may prove useful to cross with F. Fortunei or the hybrid intermedia for the production of a new hardy form for the north.

SOME NOTABLE SPRING-FLOWERING SHRUBS.

Sophora tetraptera var. grandiflora is a good subject for a genial climate. It has withstood some 20° of frost here and a small bush 4 feet high was in bloom throughout March. The curiously-shaped flowers are nearly 3 inches in length and a bright yellow, which contrasts well with the rather dull green, persistent foliage. Another shrub which we have on a wall near the foregoing is Dendromecon rigidum, the lovely Tree Poppy of California. When not cut back this beautiful subject will open its large golden-yellow, orange-centred flowers quite early in the spring should the weather be mild. Like those of Romneya Coulteri these Poppy-like blossoms last for several days, closing during inclement spells to re-open with the return of more genial weather.

Azaleas apart, there are one or two April-May flowering shrubs notable for their fine fragrance. One of them is Osmanthus Delavayi, one of the newer Chinese species, with evergreen foliage of a very deep green, the little leaves being leathery and finely toothed. Quite small plants of O. Delavayi will produce clusters of pure white, tubular flowers which have the delicious fragrance of a Daphne. Lonicera syringantha, though a loose-habited, unattractive shrub is well worth growing for the refined, Lily-like perfume of the lilac-coloured flowers which cluster its thin, wiry stems soon after the new leaves appear. Yet another shrub whose exquisite fragrance is always associated with spring-time in old-time gardens is Daphne pontica, now seldom seen in many localities.

Solanum crispum has been a mass of pale lavender throughout April, and it will not cease to maintain a succession of colour until the still finer form, S. c. autumnalis, comes into bloom. Among the first of the Cistuses to flower this year was C. lusitanicus—perhaps the most charming of the race—but this is usually preceded by C. florentinus, and another early one is the delightful and very distinct C. rosemarinifolius. C. obtusifolius is also in bloom and the large white flowers of this species, set off by the dark, glossy green foliage, are rendered even the more effective when this shrub is grown in shade, a condition to which it is by no means averse.

Among the Barberries, Berberis stenophylla practically holds the field after B. Darwinii has gone off and before most later kinds are not in flower. B. Sargentiana must, however, be noticed, not that its individual flowers are at all striking, but because they are produced in such great abundance. These, with the foliage, stems and spines of this admirable species, together make a notable object in the woodland garden.

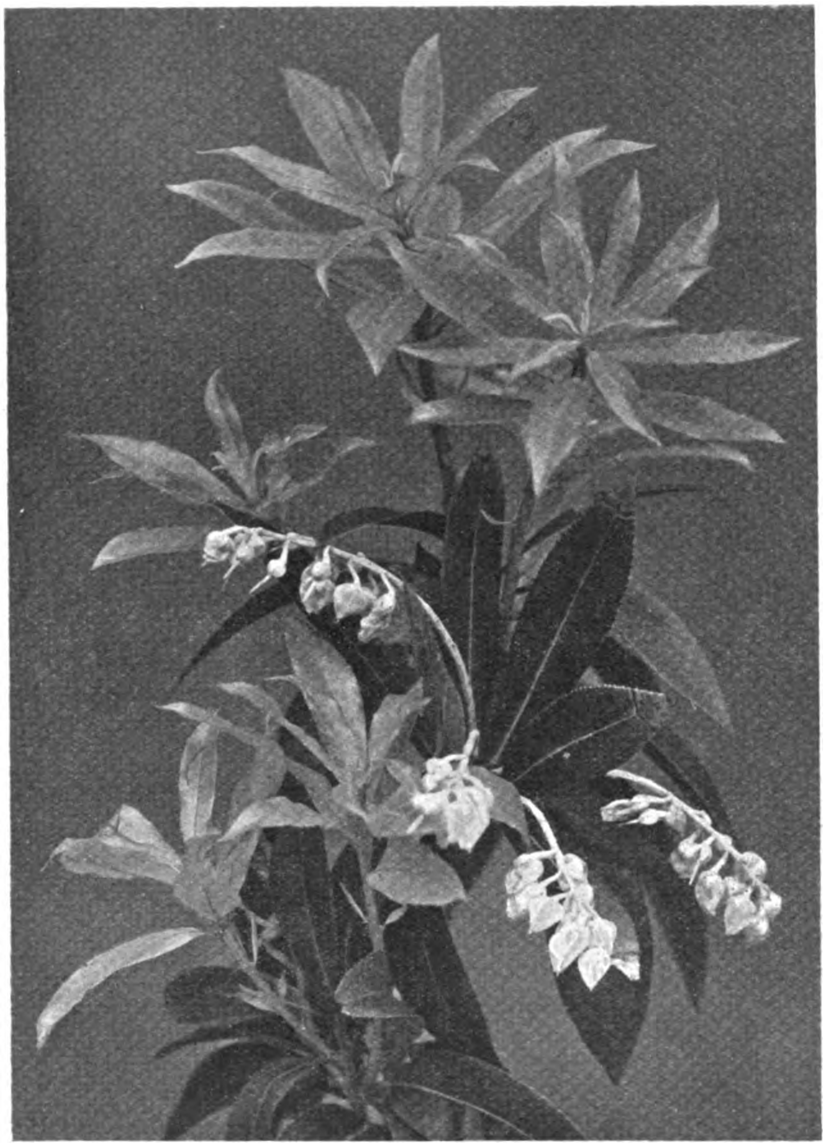

FIG. 147.—PIERIS (GAULTHERIA) FORRESTII.

R.H.S. Award of Merit, Chelsea Show (see p. 322).

Erica australis is quite the most beautiful of its race now in flower. It usually attains its fulness just as E. mediterranea is passing off, and the clusters of large, bright rose-purple flowers against the rich green of the foliage are remarkably attractive. Vaccinium corymbosum is another peat-plant of no little merit. Although its flowers are not quite so showy as those of Gaultheria Shallon, it makes amends by assuming leaf tints of unusual brilliancy in autumn.

Several of the Ledums are also delightful little bushes at this season. One of the earliest of the Deutzias, as it is one of the prettiest, is a variety of D. gracilis with blooms of a fresh lavender colour. This is soon followed by what some hold to be the "pick of the basket," D. corymbosa an eminently graceful shrub with white flowers.

Exochorda grandiflora must always be given a foremost place among spring blossoming shrubs, its habit and flower sprays being even more elegant and the latter more fragrant than those of E. macrantha. The Spiraeas also merit attention, one of the most notable being S. prunifolia fl. pl.; S. arguta (multiflora) must also still be considered one of the best of the season, though it has a serious rival in S. confusa. The little S. Thunbergii, with its bright green foliage and multitudes of small blossoms is also a Spiraea of distinction, an admirable shrublet for a cool place in the rock garden.

Contemporary with the above is the flowering of Halesia tetraptera, whose pendant "Snowdrops," faintly tinted with pink, accompany the leafing of the branches. At the same time an unusual note of colour is often afforded us by the early-flowering of an unpruned bush of the familiar Buddleia globosa. *A. T. Johnson, N. Wales.*

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RHODODENDRONS OF HUPEH.

IN the *Journal* of the Arnold Arboretum for April, 1924 (Vol. v., No. 2), Mr. E. H. Wilson contributes a paper on "The Rhododendrons of Hupeh," which will be read with interest by those numerous enthusiastic cultivators in this country to whom the author's name is very well known. In a short introduction Mr. Wilson contributes some useful information on the geology and topography of the Hupeh region, which has yielded such a wealth of new plants for our gardens. Compared with other parts of China however, Hupeh is singularly poor in species of Rhododendron, only seventeen being recognised in this paper.

In the case of a genus like Rhododendron, of which some hundreds of species have been described in recent years, it is imperative that our knowledge should be revised periodically by a monographer who has the most material at hand, including the types of as many species as possible. That Mr. Wilson has not had adequate material of some of the species he deals with seems evident. And it is very questionable whether the ancient classification proposed by Don, to which he adheres, can be applied to the genus to-day. For instance, in Section Leiorhodium, of Rehder, such diverse species as R. sutchuenense, R. detersile, R. hypoglaucum and R. discolor are associated. Considering that the name Leiorhodium would suggest lack of indumentum, its use for species like R. detersile and R. hypoglaucum is very undesirable. Strictly applied to the glabrous-leaved Rhododendrons no objection could be taken to its use.

Then, in one case at least, the author repudiates some of his own work, published several years ago, apparently on very slender evidence. I refer to the restoration of R. pittosporaefolium, Hemsley, as distinct from R. stamineum, Franchet. Wilson states: "At one time I thought it the same as R. stamineum Franch., a Yunnan species, and they are unquestionably very closely related, but R. stamineum, as described, has much thinner leaves, smaller pink flowers, thirteen stamens and shorter genitalia. Experience has taught us that none of the Yunnan Rhododendrons extend into Central China and, indeed, very few into Western Szechuan as far north as Mt. Omei. Until both species are in cultivation, where their true relationship can be positively determined, it seems best to keep the two as distinct." Wilson apparently knows R. stamineum only from Franchet's description. Had he compared the type, which is at Kew, with Hemsley's R. pittosporaefolium, he would probably have hesitated to raise again the latter to specific rank. I have made a very careful comparison and can find no difference whatever between the two. The texture of the leaves is exactly the same (Franchet describes them as "firmiter chartacea"), the flowers are equally as large as any of those of R. pittosporaefolium, and the pink corolla would go for nothing, for the corolla of R. pittosporaefolium is described by Wilson himself as "white or sometimes suffused with pink." The thirteen stamens as opposed to ten would be of no specific value. So that only the fact that R. stamineum is a Yunnan plant and that R. pittosporaefolium is found from Western Szechuan to Hupeh remains to separate them. Whilst this geographical segregation is undoubtedly often of great assistance, it is useless unaccompanied by a morphological difference of some kind.

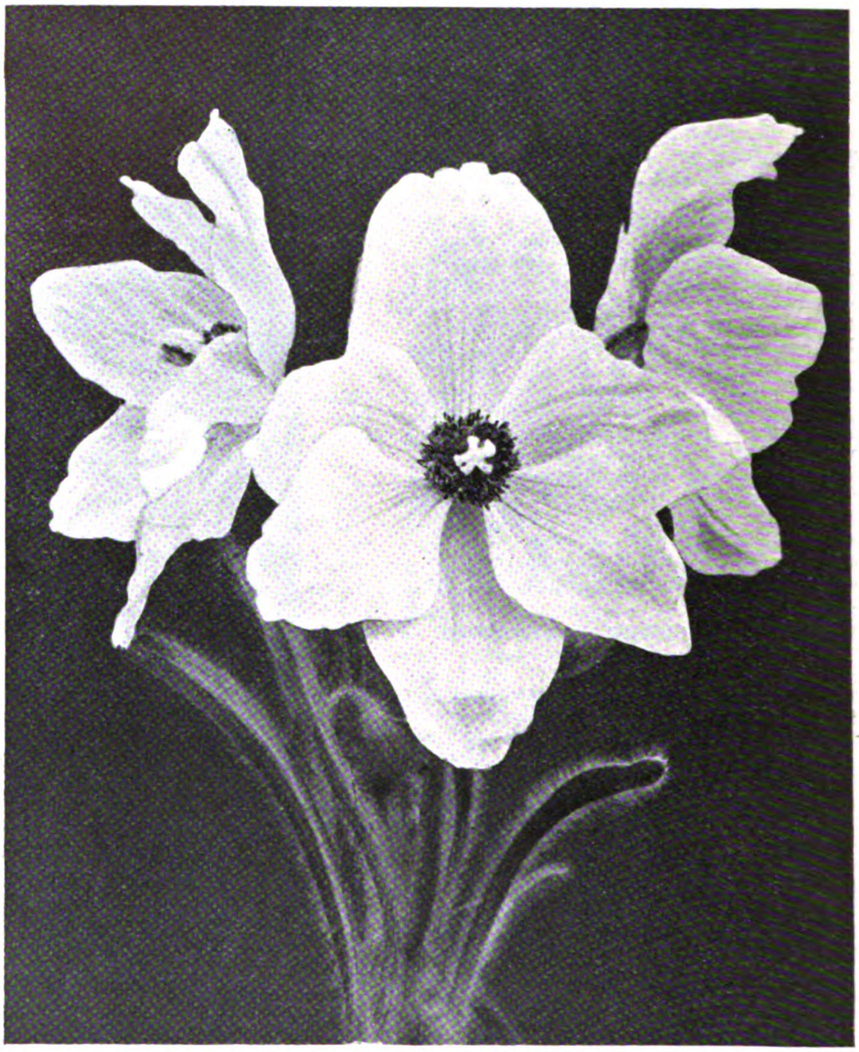

FIG. 148.—MECONOPSIS PSEUDO-INTEGRIFOLIA.

R.H.S. First Class Certificate, Chelsea Show (see p. 322).

Comment seems necessary also on Wilson's somewhat arbitrary reduction of R. praevernum. Visitors to Kew in February, 1920, interested in Rhododendrons will remember the remarkable display around the King William's Temple made by a batch of plants growing under the name R. sutchuenense. It fell to my lot to determine the identity of these beautiful plants, and the type R. sutchuenense, Franch., was obtained from Paris for the purpose. A full account was published in *The Gardeners' Chronicle* in 1920, lxvii, 127, and the plants have ever since been regarded as quite distinct from the true R. sutchuenense, examples of which are growing at Kew. In habit the two are distinct, R. sutchuenense being a straggly bush attaining a considerable height, with large leaves, glabrous below except for a coating of peculiar flaky hairs on the midrib, and with a pink corolla, light-crimson spotted but not blotched. This bloomed later than the other plants referred to, which I named R. praevernum, in reference to their early flowering. The latter differed from R. sutchuenense in being of very compact growth, with narrower leaves, the midrib quite glabrous below, and in having white flowers marked with a huge crimson purple blotch at the base. Wilson describes these differences as "in themselves trivial and moreover, inconstant," but he brings forward no new evidence to support his views. The characters may be inconstant, but whether they are trivial is a matter of opinion. I have admitted the purple blotch to be a variable character in what I described as var. Geraldii, which is otherwise typical R. sutchuenense but with a purple blotch as in R. praevernum. But the purple blotch associated by a difference in habit and in the indumentum of the leaves seems sufficient to distinguish R. praevernum as a separate species. Taken individually these characters may vary; collectively they point to rank of value equal to that of scores of other species of Rhododendrons. It is very probable that there are intermediate stages between R. sutchuenense and R. praevernum, no doubt due to hybridization in their native habitat, but the extreme forms as described by me are just as distinct as many another pair of Rhododendrons, and the presence of intermediates is no good reason for the combination of the extremes under one name.

For many years now, in work on Rhododendron and other genera, I have recognised the importance of giving separate names to plants which prove distinct under cultivation, but which may have intermediate forms in nature. This is just what is to be expected in a plastic genus like Rhododendron, wherein evolution is still an active force. Whether we call these forms species or varieties is not of much importance. I prefer, like the late Professor Sir Isaac Bayley Balfour, to treat them as species. Species, like genera and families, are not of equal value, as Mr. Wilson would endeavour to make them, and one botanist's views are perhaps as good as another's in such matters, provided he gives due and impartial consideration to all the facts before him. *J. Hutchinson, Kew.*

HORTICULTURE AT THE BRITISH EMPIRE EXHIBITION.

SOUTH AFRICAN PLANTS.

All who are interested in Succulent plants and who visit the Imperial Exhibition at Wembley should see the collection at the east end of the South African building, where they will find several kinds that have not been seen in this country before.

Owing to the very cold weather that we have had, several fine Aloes, some Euphorbias, Mesembryanthemums and others have been killed or injured by the frost, but will shortly be replaced by others. There are some good specimens of the Elephant's-foot Plant of which three distinct species are exhibited, and a few Cycads, one of which is now producing a cone—surely this must be a unique case for one of these plants to do so in the open air in this country.

Among the Euphorbias are some very distinct and new spiny species, and several of the group to which E. Caput-Medusæ belongs; one of these (E. esculenta) is eaten by animals, although most are poisonous. Another interesting species is E. multiceps, which is unlike any other plant. It has a thick, conical, fleshy stem densely covered with small globular branchlets, and at the upper part has several stout spines protruding between the branchlets. There are many good specimens of the globular species E. meloformis and E. obesa. The latter species was cultivated at Kew and figured in the *Bot. Mag.* many years ago, and soon afterwards the plant was disgracefully stolen. Trichocaulon cactiforme and one or two other species are present in the collection; there are several kinds of Stapelia and some of Caralluma. Among the latter, the most remarkable is C. mammillaris, with stout, spine-toothed stems, and almost black flowers which are borne in clusters on the side of the young stems.

Of the curious "windowed plants" belonging to the genus Lithops, three or four species are exhibited. An account of the remarkable structure of these plants and the manner in which they mimic stones was given by the writer in *The Gardeners' Chronicle* for November 12, 1921, p. 250, and January 28, 1922, p. 44, so that it need not be repeated here; but visitors who inspect these plants will readily perceive how easily they may be mistaken for stones and pebbles when out of flower. Their flowers lie flat on the top of the plant and are usually as large as, or larger, than it, of a rich yellow or of a beautiful satiny white colour. The "window" is the top of the plant, which, despite its apparent dull colour, is really semi-transparent, so that light is transmitted through it and the watery internal tissue to the chlorophyll-bearing part of the plant underground.

There are several species of Conophytum, which although rather insignificant in appearance, share with the genus Lithops the peculiarity that once a year they change their skin and come forth in a new garment, and are the only known plants that do so.

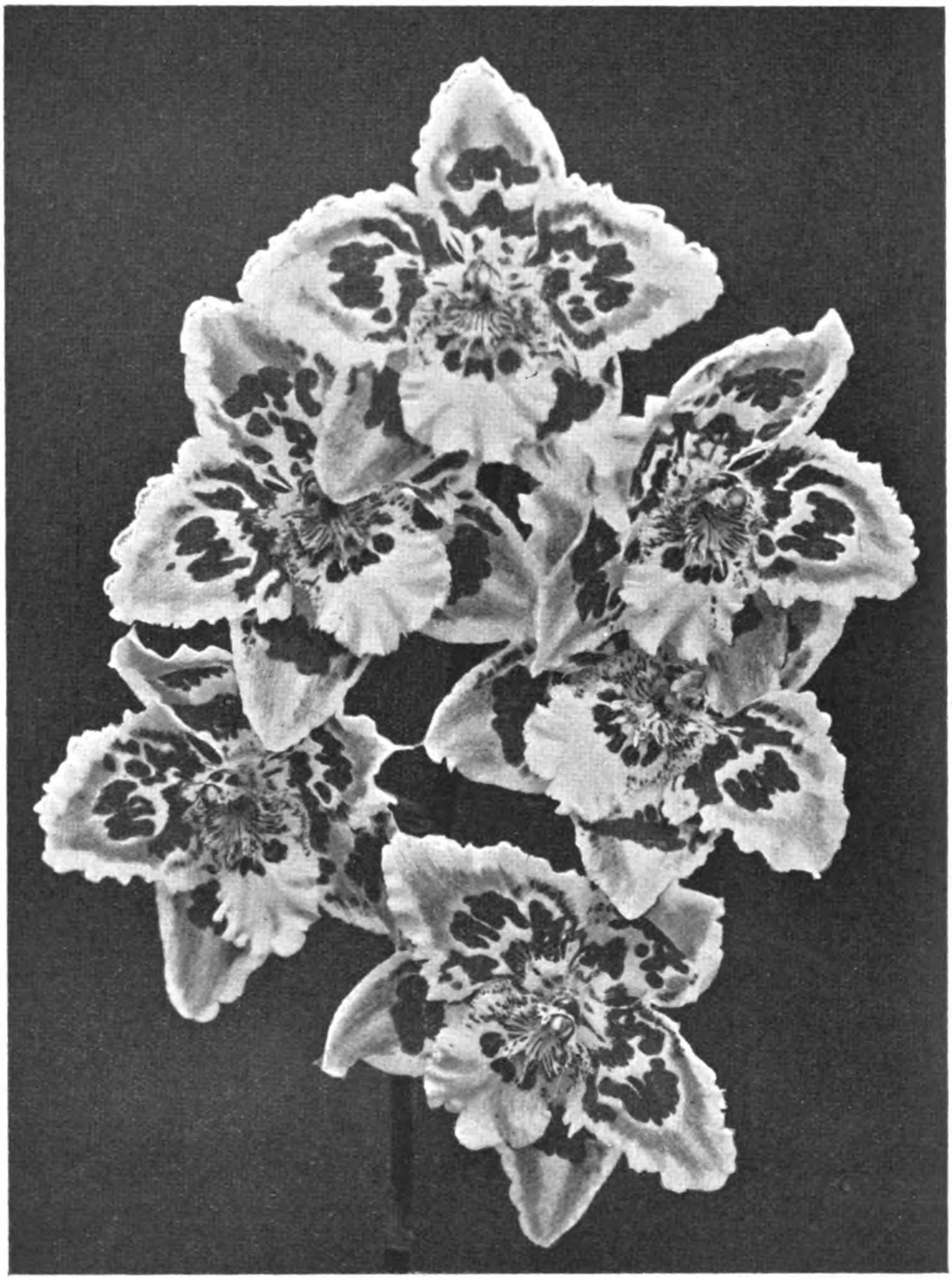

FIG. 149.—ODONTOGLOSSUM MONARCH.

R.H.S. First Class Certificate, Chelsea Show (see p. 320).

Some very fine examples of Mesembryanthemum Bolusii and M. simulans are so stone-like that at a little distance from them it is difficult to realise they are not stones. It is very remarkable how closely many species of Mesembryanthemum and those of the genera Lithops and Conophytum resemble the stones they grow among or the ground they grow in when at rest or not in flower. So much so is this the case, that one South African correspondent who is keenly interested in them remarks in a letter, when stating that they were "now out of flower and gone to rest," adds, "I can't think where they all get to." One or two examples of the curious spiny species allied to M. spinosum, which appear to be new species, are present in the collection. The members of this group seem to be difficult to cultivate.

Of Anacampseros, Cotyledon, Gasteria, Apicra, and Haworthia there are several interesting species. The peculiar genus Sarcocaulon, which is allied to Pelargonium and has spiny stems, is represented by some good specimens of two or three species, and there are also a few curious species of Pelargonium. Most of these plants are at present in a state of rest, some being leafless, but this condition will change as the summer advances.

To those interested in the manners and customs of plants, attention may be directed to one of the species of Stapelia (which cannot be named unless in flower), which bears upon it, on long, erect stalks, what appear to be young flower-buds; they are in reality the very young fruits (or rather the fertilised ovaries) concealed in the closed-up calyces of flowers produced last year, which often remain dormant for months, afterwards developing into two long, horn-like pods. Many years ago, Mr. Worthington Smith, writing in *The Gardeners' Chronicle*, mistook a similar condition of very young fruit on Hoya for cleistogamous flowers! So that it is possible that others may have done likewise in the case of Stapelia.

Two beds are planted with South African bulbs and the Barberton Daisy, which ought to make a good show of flowers if the summer proves favourable. Altogether it is a very interesting collection of plants, although not showy from a florists' point of view. These specimens, under the auspices of the South African Government, and especially of Sir William Hoy, the manager of the South African Railways, have all been collected by Mr. Frank Frith, the horticulturist to the South African Railways, brought here and planted by him in such a manner as to give some idea of the character of the ground in which they grow naturally in South Africa.

From a notice-board it is very gratifying to learn that this valuable and interesting collection of plants will generously be given by the South African authorities to Kew Gardens at the close of the Exhibition. *N. E. Brown.*

NOTICES OF BOOKS.

Grass.

Under the very simple title of *Grass** Mr. A. J. Macself has written a very exhaustive book which deals in detail with the cultivation of lawns, both of an ornamental nature and for such sports as tennis, croquet, golf, bowling, cricket, hockey, etc. The book contains much useful information, for the author discusses and offers practical advice in the formation of the lawn, and many chapters are devoted to purely cultural and practical matters. Hence we have chapters which concern the treatment of soil and its preparation, the making of lawns by seed sowing, and the after treatment of the grass until such time as the lawn has become a feature of the garden.

The correct choice of grasses is, of course, a matter of much importance, and seed firms generally offer mixtures or blends to suit a variety of purposes, sites, or soil conditions. In the hope that the lawn enthusiast may be anxious to identify some of the more important grasses, the author has discussed the principal species, and as an aid to their identification these are illustrated by line drawings. No attempt is made to describe the grasses from a botanical standpoint, and as much space has been allotted to the part these grasses play in lawn formation, it would not have been out of place for some general key to have been included whereby the beginner could have been enlightened as to the botanical differences between the various genera. There is also a note added on the undesirable grasses, amongst which Poa compressa is described as an annual.

A well-kept expanse of lawn enhances any garden—no matter how small; when allowed to become mossy, weedy, and patchy, it readily becomes an eyesore. The author rightly urges the correct cultivation of the grass, and in doing so he deals with the operations of mowing, rolling, and other details of routine work and the application of manurial dressings. The chief weeds and insect pests also receive attention and there is a note on "fairy rings," illustrated by a very poor sketch, and a drawing of Agaricus prunulus, but what relation this fungus bears to the "fairy ring" is not stated in the letter press. Mr. Macself recommends the application of a solution made by dissolving one ounce of potassium permanganate in four gallons of water as a good method of dealing with this lawn trouble.

The remainder of the book, some forty pages, is devoted to the upkeep of sports lawns and grounds, and there is a final chapter devoted to "miscellanies."

The book can well be recommended. It is printed in generous type, and apart from the numerous line drawings, which have been executed by Mr. G. E. Lee, there is one coloured plate representing a stretch of grass, the colouring of which, alas! is a sickly, yellowish-green.

Manuel du Jardinier Fleuriste.*

Within the two hundred small octavo pages of his "Manual" M. Chevalier, Curator of the Botanic Gardens attached to the University of Liege, has given a large amount of very useful and interesting information. He commences by pointing out that the book is written especially for students at schools of horticulture and for young gardeners, but he is not unmindful of the needs of those who have made some progress in the floricultural art, and therefore at the beginning of each section he gives the name of a book or books of particular value to those desiring more advanced knowledge. In the opening chapter M. Chevalier points out the special branches of horticulture carried out in the principal countries of Europe, and also in Japan, the United States and Australia. In some instances, however, the information is scanty, and this section of the book might have been considerably expanded with advantage.

The arrangement of the sections is somewhat unusual, and following the chapter already indicated the author begins the serious part of his work with a discussion of the types of glasshouses and heating for a variety of purposes. This is followed by a section on plant diseases and insect pests, subjects which are usually placed at the end of a book dealing with horticulture. Ten pages are devoted to methods of propagation, and here again it would appear that a larger measure of information might have been placed at the disposal of the student and young gardener. Following a discussion of the general principles of cultivation the principal annual flowers are listed with indications of their special usefulness. About four-and-a-half pages are devoted to the culture of Chrysanthemums and six to Carnations, with special reference to perpetual-flowering and Malmaison varieties. As might be expected, considerable space is devoted to the cultivation of hard-wooded plants, such as Abutilon, Araucaria, Aralia, Azalea indica, Camellia, Fuchsia, Hydrangea and Citrus, but it is something of a surprise to find Marguerite, Heliotrope, Salvia splendens and Pelargonium in this section Considerable attention is given to decorative plants, both foliage and flowering, while Palms, so largely grown in Belgium, are discussed at moderate length and about eight pages are devoted to the cultivation of the more popular kinds af Orchids. Even the forcing of flowers is dealt with—including the etherization method—and special reference is made to the cultivation of bulbous plants for decorative purposes, while garden design of the carpet bedding style is dismissed in about five pages.

The book is freely illustrated, but the illustrations are all diagramatic and not of a very high order, indeed, in many instances reproductions from photographs would have been a great improvement. The printing is clear, but the use of italics for popular names is to be deprecated. The binding is poor and we are afraid the paper covers would not serve long to hold the book together when used by an enthusiastic student.

COMMERCIAL FRUIT GROWING IN NORTHERN SCOTLAND.

Recognising the value of the special knowledge possessed by those engaged in horticulture, and the practical application of that knowledge to a greater development of commercial fruit growing, a party of gentlemen was recently taken round the principal gardens and fruit plantations of Moray and Nairn by Mr. J. Ames, of the Aberdeen and North of Scotland College of Agriculture. The first visit was paid to Lesmurdie Gardens, where the party was met by the proprietor, Colonel Johnston. A plantation of Black Currants of the variety Seabrook's Black, which is regarded as an excellent resister of big-bud mite, was examined, and a minute inspection failed to find a single diseased bud. A horizontally trained Pear, Catillac, in full flower, and well kept fruits of large size, demonstrated the value of this variety.

At Gordon Castle, the Duke of Richmond and Gordon's chief Scottish seat, the party was met by the gardener, Mr. Webster, who led the visitors first to the grass orchard, where was shown a fine example of the method of growing fruit trees on grass land. The bush tree, which offers important advantages over the tall standard type, was well illustrated by the finely trained trees, which are managed entirely from the ground. For a number of years the Gooseberry bushes at Gordon Castle were badly attacked with American Gooseberry mildew, but Mr. Webster successfully overcame the trouble by summer spraying with ammonium polysulphide. Spraying is commenced at the end of May, and repeated at intervals of three weeks up to the middle of August, and the young shoots are tipped about the end of July.

From Gordon Castle the party proceeded to the Orchard, Garmouth, where it was met by the owner, Mr. J. Calder. There are two acres under fruit here, and althouh the soil is light, and the position exposed, profitable yields have been obtained. Here, as in other places, Bramley's Seedling Apple proves an outstanding variety.

The Brodie district is the centre of commercial Black Currant growing in Morayshire, and here numbers of Black Currant plantations quite free from big bud disease were seen. The first visited was Cotterton, owned by Mr. Torrie. This gentleman, who has kept records for a number of years, showed the Black Currant, on an average, to be worth per acre three or four times the value of an ordinary farm crop. He attributed the freedom from big bud mite on his fruit land as due in a large measure to his removal of the old wood every year, just after the fruit had been gathered. This operation, combined with liberal manuring, Mr. Torrie contends, is one of the chief points in maintaining Black Currant bushes in a healthy condition. Proceeding to Brodie Castle Gardens, the party was met by the proprietor, the Brodie of Brodie. Attention was directed to Apple trees of bush shape, having the lowest branch rising about eighteen inches from the ground, which have proved very suitable for field work. The effect of winter spraying regularly with a caustic wash was finely reflected in the clean condition of the trees and the entire absence of Lichen.

At Cawdor Castle Gardens, Nairn, was found a Raspberry plantation unique of its kind. It is over a hundred years old, and has been treated in an unusual way. The surface of the soil has been regularly dressed with sifted ashes, and this has had the effect of maintaining the plants in an extremely vigorous condition. This Raspberry, although of local origin, is still considered one of the best varieties in cultivation.

A visit to Burgie House gardens, a beautiful centre owned by Mr. J. K. Thompson, closed the day's proceedings. Here was shown the suitability of the Black Currant for a heavy soil, the strong, healthy growth of the bushes, entirely free from big bud, evoking warm admiration. How suitable the district is for the growing of Apples was well illustrated by the promising appearance of the young trees. The most prominent varieties grown here include Lord Derby, Newton Wonder, Bramley's Seedling, James Grieve, and Worcester Pearmain. The members of the party were greatly impressed with the possibilities of fruit-growing on a large scale in this part of the country, and felt that here was a fine field that might well be exploited by others than gardeners.

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* *Grass.* By A. J. Macself. Cecil Palmer, 49, Chandos Street, W.C.2. Price 15s. net.

* *Manuel du Jardinier Fleuriste.* By Ch. Chevalier I. de Lannoy, 79, Chaussee de Haecht, Bruxelles. Price Fr. 5.70.

INDOOR PEACHES.

Forced Peaches in common with those on open walls are developing later than usual this spring, but unless very early fruits are required this is not an unmixed evil, as the fruits need plenty of time to develop slowly when passing through the stoning stage. Abundance of light and sun is necessary when the trees are in flower and again when the fruits are at the final stage of swelling.

Do not keep the shoots tied in too trimly until, the stoning of the fruits is completed; after this a general tying and stopping of the laterals should be done, also any pendent fruits which can be raised upwards should receive attention. If a good crop of fruit has set, sufficient can generally be found on the upper side of the shoots, but in many places this has been an exceptional year, and Peaches in any position will be acceptable.

Syringe the trees twice daily in favourable weather, first when the temperature begins to rise and again when closing the house, about 3.30 p.m. Soft water or water free from lime is best for syringing, as sediment of any kind spoils the appearance of the fruits.

Examine inside borders and water the soil copiously with warm diluted liquid manure or clear water, as the condition of the trees may decide, and damp the paths, etc., with diluted liquid manure every evening, when a little air is admitted by the front and top ventilators for the night.

Mulch inside borders with short stable manure, especially where old, heavily-cropped trees show signs of weakness, using less manure for young trees which do not require assistance. With good culture, aphis will not now be troublesome, especially if weak, clear soot water is used once or twice a week for syringing the trees. Should aphis appear, two light fumigations are safer and better than one heavy one; in all cases syringe well and early the following morning following fumigating. The temperature of the house should range from 65° to 70° at night falling to 60° or 65° in the morning, according to the weather, and throughout the time of the last swelling of the fruits, rising to 80° by day with full air. The secret of airing consists in admitting a little air early, increasing the amount as the temperature rises, guarding against sudden changes in the temperature of the house and cold draughts, and carefully reducing the amount of air after the turn of the day. Trees in succession-houses need similar careful treatment in airing, and plentiful supplies of warm, diluted liquid manure as they require it, also disbudding of the shoots little and often. Disbudding is an important cultural detail, especially in the case of young vigorous trees. The removal of shoots should always be commenced where grossness is most perceptible, but instead of rubbing the shoots off, many of them with fruit at the base may be pinched back to two or three leaves, their complete removal being deferred until thinning is finished. By this means an improvement in the lower and weaker part of the tree soon becomes perceptible. The temperature of these houses may be about 60° at night, 70° to 75° throughout the day, and 80° after syringing the trees in the afternoons. Late, cold houses that are often crowded with pot plants need fumigating on the first opportunity after the fruit is set, and once the trees are clean they may be well syringed on fine mornings, but as the weather is often very changeable up to the first few weeks in June these houses are safer shut up warm and dry until all danger from frost has passed, as aphis and late frosts are the two chief enemies to contend with. With careful attention in airing, disbudding, and thinning of the shoots and watering the borders the quality of the fruits will be of the finest. *F. Jordan.*

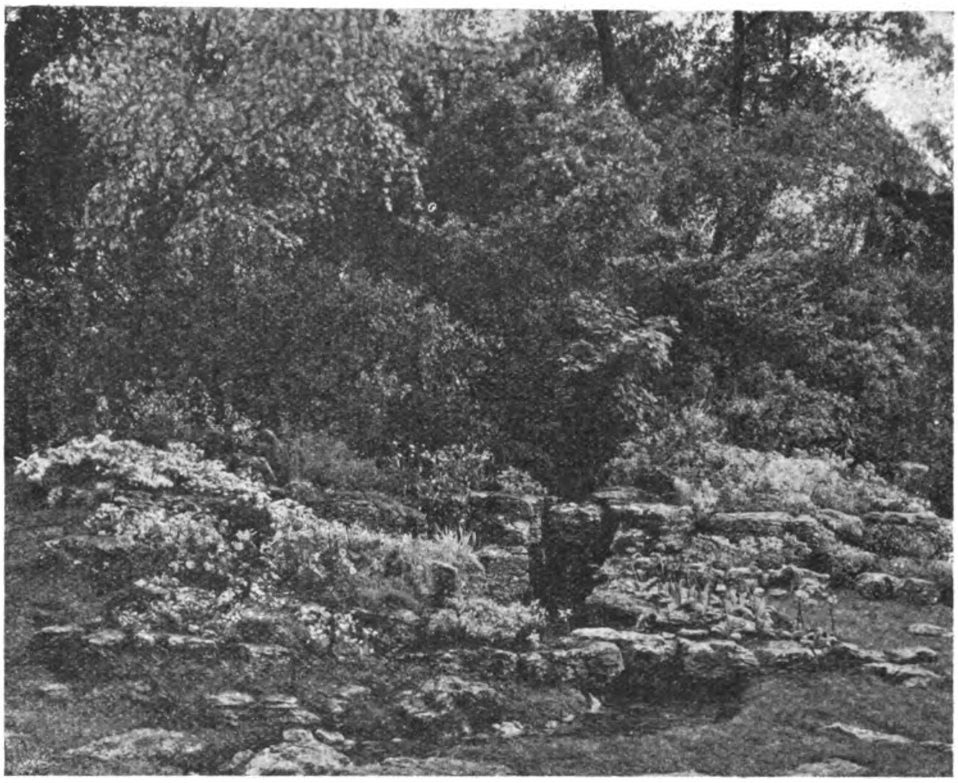

FIG. 150.—MESSRS. PULHAM AND SON'S ROCK GARDEN EXHIBIT AT THE CHELSEA SHOW (SEE P. 328).

VEGETABLE GARDEN.

THE RADISH.

RAPHANUS SATIVUS.

Radishes are so easily grown in Britain that many look upon them as derivatives of the native Raphanus Raphanistrum which is found growing wild in cornfields, and Raphanus maritimus, a tap-rooted weed, which, as its name implies, grows freely on the sea shore. Both are troublesome weeds which are very difficult to eradicate once they have become established in cultivated ground. They are quite hardy, produce seed freely, and it is claimed that these seeds are suitable for grinding into cake for cattle food, but the wisdom of such action is very doubtful.

The colour of the flower in each case is yellow while the flowers of the cultivated variety vary from white to purple.

While differences of opinion exist as to the parentage of the garden Radish, Raphanus sativus is the generally accepted species. This is supposed to have reached this country about 1548, coming from China or some part of southern Asia by way of Egypt and Greece where it became the most highly esteemed vegetable known. Its anti-scorbutic properties alone would cause it to be highly valued. It is possible that its existence was well known before the above date, for according to Dodonæus, several varieties were grown in Brabant, of which illustrations appear in his *Herbal,* the English name being given as Raddische.

There are several sub-varieties of R. sativus, one of which, R. s. olifer, is known as the Oil Radish It grows from six inches to twenty-four inches high, is much branched and spreading, and produces more seed than any of the common varieties. It is extensively grown in China for its oil, which is superior to that of Rape but more difficult of expression. This Radish was for a time cultivated in some parts of Europe, but the culture was not a great success. It is too tender to be sown in the open fields in Britain until after the disappearance of the frosts of spring. The same remark applies to a great extent to the edible varieties, and seriously affects the culture of Radish seed in this country. At the same time some of the best Radish seed the world produces is grown in the south-east of England.

The method adopted is to put the seed plants, when matured and dried in the autumn, into seed stacks, where they remain until the warm, dry days of the following June. By that time the seed has absorbed all the nutriment of the parent plant, the pod is perfectly dry and brittle, and the threshing is easily effected without in any way injuring the seed, which, by the way, grows more evenly, retains its vitality for a much longer time, and produces a crop of smooth, clean roots from which all the coarseness, inseparable from all oil-yielding seeds, has been naturally eliminated.

It is quite possible to thresh English-grown Radish in the year of its growth, but the method detailed above is superior.

One other outside member of the Radish family deserves mention. The variety in question is known as the Rat-tailed Radish, Raphanus caudatus, a variety of which only the seed pods are eaten. The plant is a native of southern Asia and produces very narrow seed pods about ten inches long. These are picked before they are fully grown and are eaten raw. They have a pleasant, pungent taste, and may also be pickled in vinegar and used as required. This plant created considerable interest about fifty years ago but now orders for the seeds are few and far between.

Coming now to the common or garden variety, the list of variations in colour, form and season is simply marvellous, and fully appears to justify the opinion of some botanical writers that they cannot all have been produced from one parent species. Taking colour first, we find nearly all the colours of the rainbow, with black and white thrown in; and as regards form, there are long, half-long, short, round, square, oval, Olive-shaped, oblong and pointed roots in bewildering variety, in addition to which there are some like the workhouse dumpling, no shape at all. No wonder it is the most popular vegetable grown. Every civilised nation from Russia and Egypt to Land's End and Gibraltar has had a hand in its development, and the work is still going on.

It is somewhat singular that while France and England use one specific name for the Raphanus. viz., *Radis* and Radish, in Germany two very different words are used, viz., *Monats Radies* for the earliest varieties, and *Rettig*, or *Rettiche*, for the larger and later sorts.

The following is an abbreviated list of standard varieties in the early section, arranged according to their respective earliness; the list could easily be multiplied tenfold, but only the seedsmen's trial grounds need to find room for every variety that is raised. At the same time it is well to point out that every distinct variety has its own special merits, and these are not ignored by their omission from this list.

In the order of their earliness forcing varieties naturally come first. As these only take from sixteen days to thirty days to mature it is quite easy, where the necessary appliances exist, to have supplies by this method from January to Easter, by which time the roots from outdoor sowings in warm and sheltered situations will be ready for use. Forcing White Olive-shaped is the earliest and most reliable variety. Forcing Scarlet Olive-shaped White-tipped (the earliest form of the French Breakfast type) is almost as early, and looks very pretty in the salad bowl; Saxa, a bright scarlet, round root, and Rosy Gem, a scarlet Turnip-shaped Radish with large white tip, make an excellent quartette. For those who prefer a long Radish, a good strain of the old Wood's Frame fills the bill. Long White Pearl Forcing (syn. Icicle) is also a good forcing Radish, and is one of the very best roots in appearance and quality. Triumph, a scarlet-streaked white Turnip-rooted Radish, and a fine strain of the true Scarlet Globe complete the list.

The spring and early summer section is much more numerous and varied, including French Breakfast, the original variety, which takes a lot of beating. Early Deep Scarlet Turnip, Extra Early Golden Yellow Turnip (good also for forcing), Sparkler, a rosy-carmine Turnip-rooted variety with a large, white tip, the best of the white tipped Radishes, and the most popular variety grown to-day, (one dealer who supplies the market garden trade has sold seventy tons of seeds of this variety already this season); Violet Turnip, with a white tip, a very pretty Radish of good quality which quickly becomes pithy; Early White Summer Turnip, Golden Olive, and last, but not least, the Wurzburg Giant (syn. Crimson Giant, etc., etc.), an early, large, round variety, solid and sweet, and retaining its good qualities for a very long time. The Covent Garden Long Scarlet deserves special mention. It is a genuine British production carrying its colour right down to the tip of the root; the flesh is tender and crisp and the flavour pleasantly mild. Of other good, long summer varieties, Chartier (syn. Knickerbocker, etc., etc.), long, bright rose, with a white base, is one of the largest Radishes known; White Strasburg or Hospital, a very large, pointed, white variety of very mild flavour and long keeping qualities; Brightest Long Scarlet (Meteor), a distinct and very handsome summer variety of exceptionally good quality, and Early White Giant Stuttgart, a large, peg-top shaped, white, solid, long-keeping variety, are strongly recommended.

The list of autumn and winter Radishes is not so numerous, but there is sufficient variety to satisfy the most exacting. Most of them grow to a large size, are very solid and crisp and, with a few exceptions, of excellent flavour. The Rose China is one of the very best. There are two different forms, the half-long with swollen, rounded base, and the round, which is also known as the Pamir Radish. Viewing them merely as plants these are quite distinct from all other Radishes, and this is held by some botanical writers to indicate that they are developments of a wild species. It is an open question, not capable of positive proof. A white variety named White Chinese or Celestial grows to a much larger size and is said to be superior in every respect to the red varieties. It has never become very popular in Britain, but in America there is no more popular winter variety.

Of the Black Spanish Radish there are three varieties, long, round, and half-long. The latter has only recently come into favour, and while it is somewhat variable in character and not of a very pleasing colour (dark ash grey) it has many good qualities.

In addition to the foregoing there are the long and round Coal Black Parisian Radishes, which are very popular in France, the country of their origin. There is, however, very little difference in the two strains except the colour of the skin and the fact that the Paris variety is somewhat earlier.

Black Radishes have been known and grown in Europe for nearly 400 years. It hardly seems possible that they are the offspring of the same parent as French Breakfast or Sparkler.

Other good winter sorts are the long and round White Spanish, fit company for the black; half-long, dark-coloured Munich, beloved of those who are fond of imbibing Münchener Bier (there is a white variety for those who prefer it), and the Long Purple Gournay, a purple form of the long Black Spanish.

As regards the hardiness of winter Radishes, while they may resist the cold in very mild winters in southern England, the safest plan is to carefully lift them before frost sets in and store them in sandy soil for winter use.

While one is bound to admit that even an abbreviated list is somewhat long, it is well to remember that it is possible to keep up a supply all the year round with only four or five varieties, but in such a case the pleasure of sampling the distinctive qualities of the other kinds is lost. *S. B. Dicks.*

FORCED POTATOS.

Owing to the high price of old Potatos much attention is being drawn to this most important vegetable. Early Potatos may be produced in various ways and by the use of simple appliances. Being a sub-tropical plant the Potato may be grown in considerable heat, provided sufficient air, light and moisture are afforded. New Potatos may be obtained early in April by the following system:—As the crops of early Potatos are being lifted from the open ground tubers should be selected for seed, placed in shallow trays and when dry removed to a cool, freely ventilated shed. After a few weeks the tubers should be examined (this provides work for the staff on a wet day) and all bruised or defective ones removed. The sound tubers should be packed closely together on end in shallow trays placed on temporary benches erected for the purpose around the walls of the shed under the windows. The tubers should be afforded protection during frost. Early in December they should be examined and the more forward of the sets which have started into growth selected for removal to the greenhouse, where they should be set up in shallow boxes and exposed to full daylight. By the new year the tubers will be ready for planting in ten-inch pots. The pots should be half-filled with a compost consisting of two parts light loam and one part each of leaf-mould and well rotted manure from an old hot-bed with a six-inch potful of bone meal to the barrow load. The soil should be brought into the greenhouse and when it is warmed the sets should be planted. Varieties with dwarf haulms may be planted two sets in a pot; the stronger varieties should be placed one in a pot. A day temperature of 50° should be maintained and the warmth increased gradually with the lengthening days. Abundance of air should be admitted at all times when the weather permits. As growth advances more soil should be placed in the pots and light twigs stuck in the pots to support the haulm. Weak manure water may be given the plants twice weekly when the soil becomes filled with roots. Varieties which have given satisfaction here are Dargill Early, Witch Hill (syn. Snowdrop), May Queen and Sharpe's Express.

Supplies to follow may be produced in unheated pits. In this case the tubers should be planted in light, well-manured soil in rows made twenty inches apart, placing the sets fifteen inches asunder in the rows. The tubers should be planted about the middle of January. Cover the lights during frosty weather; by this method useful tubers may be obtained in May. The soil will require watering and the surface of the beds should be stirred with the hoe, but earthing-up is not necessary for this crop. Light applications of sulphate of ammonia give good results. *C. Ruse, Hyde Garden, near Luton.*

HOME CORRESPONDENCE.

Geum Mrs. Bradshaw.—In the note on Geum Lady Stratheden, *Gard. Chron.*, p. 253, it is remarked that its scarlet companion, Mrs. Bradshaw, has become one of the most popular of garden plants, because it contributes to the gaiety of the garden the whole summer through. According to my experience with this plant it has two distinct periods of flowering, the first in early spring, followed by a period with few or no flowers. Then a second crop of flowers develops during late summer and these continued last season until well into October, at which period they gave far-and-away the brightest patch of colour in the outdoor garden. *Geum.*

Vine Mildew (see p. 202).—There are several statements in the article by Mr. F. Jordan which are not in accord with my observations. Mildew is not "communicated to the vines from other plants." The vine mildew (Oidium Tuckeri) is totally distinct and is not known to infect any other plant. Mildew is not caused by draughts, though it is possible the spores may be conveyed from one place to another by the movements of the air. Fire-heat will not prevent mildew, and it is extravagant to apply it in the warmer parts of the country for

Black Hamburgh and Sweetwater Grapes unless the fruit is wanted early. Sulphur has little or no effect on mildew unless it is heated to at least 80° and made to emit sulphur fumes. It is often advisable to open the front ventilators as well as the upper ones, in order to keep down the temperature during the stoning period (which commences in about four weeks after the first flower opens) to prevent what is called 'scalding.' Sulphur fumes, such as are emitted from the sulphur vaporiser or from hot-water pipes are dangerous to the tender skin of the berries before the stoning period. There is no difficulty in ridding a house of mildew during the early winter. Soft soap, half a pound to one gallon of water is effective if applied with a brush immediately after pruning the vines. It is advisable to treat the vines twice in case a bud or a portion of the stem should be missed during the first application. When this strength is used the vines should not be denuded of the outer bark, which is there for the protection of the inner bark, in which so much of the plant's work is carried on. It is very porous, and a strong dose of any dressing used might poison it. Add sulphur if you wish by its use to make the paint of convenient consistence, but it will have no immediate effect on mildew or insects. However, much of its potency will remain till the following summer, if the syringe is not used, and then, by the aid of sun-heat, it will give off sulphurous fumes. During some seasons I have had eight or ten vineries belonging to as many different people, under my superintendence, and only in one case did the above remedy fail. This was where the stem of the vine was outside a building and carried up to the second storey before entering the house. There were some branches produced on this outside stem and there being no ladder handy at the time, these parts were not dressed. The mildew evidently lurked on the outer portion and entered the house through the front ventilator. If there is any suspicion of mildew lurking in a house while the fruit is very tender, it is well to keep a sharp watch for it, as otherwise the crop may be ruined in a few days. If the tiniest speck is discovered, a spray made of soft soap, two ounces to the gallon, will speedily arrest it. It will injure the bloom of the berries to which it is applied, but not more so than sulphur, and it will be more speedy in action. After the stoning is somewhat advanced and the skin of the berry has become partially hardened, the sulphur vaporiser may be used. This has the disadvantage of leaving a coating of dust on the fruit and leaves, which may, however, be blown off by a powerful pair of bellows early in the following morning before any dew has settled. *Wm. Taylor.*

Canteloup Melons.—It is good to see these most excellent fruits recently referred to in these pages. They are not nearly widely enough grown here, though one occasionally sees quite big prices quoted for imported produce. Put side by side on the table with the hothouse Melon, it will generally be found that a second slice of the Canteloup and not of the other is requested. For some reason English seedsmen do not quote the better varieties, and lump what they do offer together as "hardy frame Melons." Prescott Hatif and Prescott Fond Blanc are the named sorts most frequently met with, but I put these in second rank compared to Bellegarde, Noir des Carmes, de Vauriac and Délices de la Table, whilst Sucrin takes an intermediate place. Noir des Carmes is often mentioned as the best variety for beginners, but I have not noticed any particular difference in ease of culture as compared with other sorts. Where two sorts are grown (my limit is five), Bellegarde and Noir des Carmes might well be selected. Some years ago I detailed in these pages how they could be grown without other heat than that yielded by the sun. *H. E. Durham.*

SOCIETIES.

CHELSEA SHOW.

(*Concluded from p.* 330.)

Trees and Shrubs.

Both in the tents and out-of-doors miscellaneous groups of hardy trees and shrubs formed an important feature of the show. Although small the collection from Lady Aberconway (gr. Mr. Puddle), Bodnant, N. Wales, was particularly interesting, as it illustrated species and varieties in many parts of the country, which may be grown on and near the western seaboard. Well-flowered sprays of Embothrium coccineum and Davidia involucrata were on view with such Rhododendrons as R. Lindleyana, R. fragrantissima, R. Kelseyi, R. Roylei, R. Manglesii, and R. Penjerrick, the last named being a cross between R. Aucklandii and R. campylocarpum. Uncommon shrubs, gathered from the open, were also contributed by Sir Arthur Vivian, K.C.B., Bosahan, Cornwall, who showed sprays of Olearia nitida, Acacia juniperina, Andromeda formosa and Tricuspidaria dependens.

The shrubby Calceolaria violacea, Clianthus puniceus and the white variety; Olearia macrodonta, Viburnum tomentosum, with various Rhododendrons and St. Brigid Anemones were shown by Messrs. R. Gill and Son. A number of interesting half-hardy plants were included in a group arranged by Mr. G. Reuthe, who showed Daphne Cneorum major, Magnolia parviflora, Drimys aromatica, Sophora and Tricuspidaria Hookeri, with many large-leaved Rhododendrons.

Two fine specimens of Musa japonica, the "Hardy Banana," were included by Messrs. Hillier and Sons in their interesting group, which also contained a large branch of Davidia involucrata in flower. Other subjects of interest were Populus Wilsonii, Arundinaria Falconeri, A. Hookeri, Fremontia californica, Ceanothus in variety, Picea hondoensis, bearing a number of young cones, Pinus Cembra and P. pumila. Messrs. W. Watson and Sons showed a good batch of their crimson-flowered Cytisus Dorothy Walpole.

Amongst the interesting shrubs displayed by the Donard Nursery Co. were Leptospermum scoparium in several good varieties, Lomatia pinnatifolia, Berberis Irwinii and Olearias, with many Rhododendrons, Azaleas and Brooms. Mr. J. C. Allgrove included a few specimens of Cercis Siliquastrum, the Judas Tree in flower, with graceful standards of Rosa Hugonis, Lilacs and Honeysuckles. In front of his Roses, Mr. Chas Turner showed good varieties of Lilacs. In a corner group of shrubs Messrs. J. Cheal and Sons displayed a well-coloured Fagus sylvatica tricolor, Corokea japonica, Hydrangea Sargentiana, Enkianthus japonicus and E. campanulatus, with many Brooms, Lilacs and Rhododendrons.

Chief amongst his many good garden Lilacs, Mr. R. C. Nottcut showed Dr. Charles Jacob, Congo, Hugo Foster, and Maréchal Lannes of the singles, with Edouard André, Marc Micheli, Madame A. Buchner, and Jules Ferry of the giant doubles. He also showed a large selection of Cytisus, including such desirable sorts as Daisy Hill splendens, Donard Seedling, versicolor, and the scoparius varieties Firefly and Dragonfly.

In the open Mr. L. R. Russell had a large and well arranged collection of hardy trees and shrubs in which many Maples, both species and Japanese varieties, Ceanothus, Brooms, and Azaleas figured.

Messrs. W. Fromow and Sons brought one of their monster collections of Japanese Maples in well-grown specimens, illustrating a great diversity of leaf, form and colour. Viburnum plicatum grandiflora, Kalmias, Acers, Rhododendrons, and Azaleas were well shown by Messrs. A. Charlton and Sons.

Topiary specimens were exhibited by Messrs. Wm. Cutbush and Son, Messrs. L. R. Russell, Ltd., and Mr. John Klinkert, while Messrs. Robert Green, Ltd., showed Bay trees, and the Yokohama Nursery Coy. had a collection of dwarfed trees reputed to be of great age.

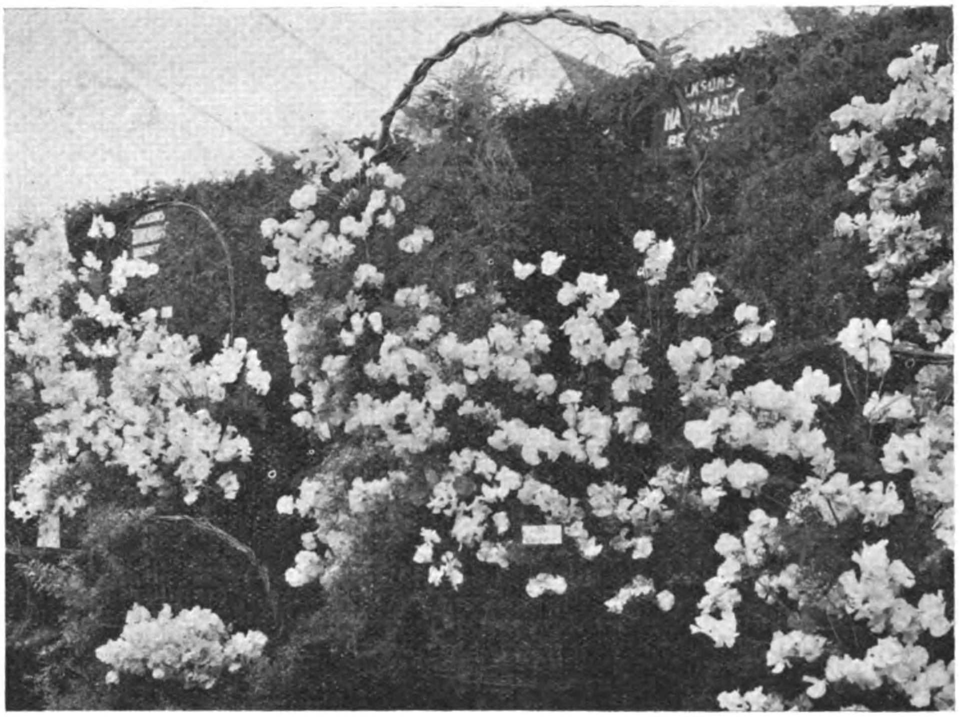

FIG. 151.—PART OF MESSRS. ALEX. DICKSON AND SONS' EXHIBIT OF SWEET PEAS AT THE CHELSEA SHOW (SEE P. 323).

Rhododendrons and Azaleas.

The vivid glowing masses of colour provided by the large exhibits of Rhododendrons and Azaleas were a very popular feature of the show with the visitors. In the groups of Messrs. WATERER, SONS AND CRISP there were many profusely flowered standards of Pink Pearl, which might well be termed the Rhododendron of the show—it was shown so frequently and in such great beauty. Other pink varieties were Elsa Crisp, Lady Clementine Mitford, Mrs. E. C. Stanley, Cynthia, and Corona, while Doncaster and Prometheus were dazzling scarlets. Besides Pink Pearl of large size, Mr. T. LEWIS grouped Baroness de Rothschild, Wm. Austin, and Prometheus with other Rhododendrons, and amongst his Azaleas included Seedling No. 1 of glowing colour. The ORPINGTON NURSERIES associated Rhododendron Doncaster with masses of Pink Pearl, and also showed Cytisuses and Lilacs. Some good seedling Rhododendrons were contributed by Messrs. M. KOSTER AND CO., and of these Robert W. Wallace, of Pink Pearl colouring; Miss Noreen Beamish, bright pink; and Hugh Wormald were the best. In another group they showed many Azaleas of the mollis type. The chief Rhododendrons shown by Messrs. FLETCHER BROS. were Mrs. E. C. Stirling, H. M. Arderne, and Mr. John Millais. In the avenue Messrs. WALLACE AND CO. arranged splendid Rhododendrons in such highly desirable sorts as Dr. S. Endtz, Hugo de Vries, and Countess Fitzwilliam, with many Maples and some excellent specimens of Enkianthus japonicus.

A rich bank of Azaleas was arranged by Messrs. R. AND G. CUTHBERT, who employed to good effect a great many plants of the various types of hardy Azaleas. The large-flowered mollis and the mollis-sinensis hybrids predominated, and these were represented by many named sorts of great excellence. This firm had a number of standards of the rustica varieties, and of these Aida, Freya, and Norma were exceedingly beautiful specimens.

Clematis.

The only group composed solely of Clematis was arranged by Messrs. G. JACKMAN AND SONS, and this fully equalled the many exhibits of this valuable climber that the Woking firm has displayed over a long period. There were many trained plants on view and all were of great excellence; the flowers, which were freely produced, were large, of good substance, and embraced many lovely shades of colour. Of the double-flowered sorts Countess of Lovelace, Belle of Woking, and King Edward VII. were perhaps the very best. Chief amongst the singles of rich blue colouring were President, Sir Garnet Wolseley, and Laurestern, while the pale blues Lady Londesborough, William Kennett, and the silvery lavender C. lanuginosa candida were very charming. Ville de Lyon provided the brightest colouring; Miss Bateman and The Bride were the best whites and the indispensable Nelly Moser was well represented.

Formal Gardens.

With perhaps one exception, the rigidly formal garden was not represented at Chelsea this year, but there were several of more or less set design and treatment. The outstanding feature of the garden made by Messrs. CARTER AND CO. was a central fountain from which sprung a powerful jet of water, rising to a height of some twenty feet and falling with cooling and pleasant splashes into the pool again. Surrounding this sunken pool was a dry wall terrace contiguous to grassy slopes bordered with gorgeous Rhododendrons. A paved walk in the background centred on a well-designed, tiled garden shelter. This garden was illustrated on page 322.

A sunken pool was also the central feature of a garden laid out by Messrs. GAZE, Ltd. Four jets of water met in the middle, and whether by accident or design, fluctuating pressure added to their attractions. There was plenty of surrounding green sward, and the whole was enclosed by a goodly Yew hedge. Flowers were restricted to those of blue shades in the garden proper and to orange yellow Azaleas along the boundary hedges. Messrs. R. NEAL AND SONS had a large garden with a paved centre enclosing a canal which broadened at each end. Water sprung from a fountain set in an archway in the terrace retaining wall and gently flowed down the canal. The centre was flanked by ample lawns which bounded narrow Rhododendron borders, while in the terrace there were pleasant herbaceous borders.

A very successful garden was made by Messrs. J. CHEAL AND SONS, Ltd. It may well be termed a large-sized villa garden in miniature, though the whole covered a respectable area. There was a conventional sunken garden in the middle of the flower garden portion and this contained a round pool. At the far end a well-made trellis separated the flower garden from the fruit and vegetable quarters, which were well laid out and planted. At the back they built a very satisfactory brick wall which contained a pleasant recess and garden seat from which a good view of the garden could be obtained.

An uncommon octagonal garden was laid out by Messrs. KENT AND BRYDON and this was one of the most pleasing in the show. The shape was repeated in the sunken centre which had dry retaining walls. Most of the low, surrounding terraces were laid out in the form of low rock gardens which were planted with great taste and commendable restraint. The flower borders were also very pleasantly arranged.

Judging from the severity of the style the garden by ITALIA HOUSE, LTD., was intended to illustrate the use of their flag-stones and stone vases, and in this the garden was successful. Mr. HERBERT BROOK also showed to advantage the uses of his Yorkshire stone for dry walls and paving; as also did Messrs. WM. WOOD AND SON with their paving, and they had a well-designd and artistically thatched fruit room.

Mr. JAMES MACDONALD made one of his most fascinating grass gardens. The lawns were of enviable smoothness and greenness and, of course, quite free from weeds. The formal little beds and borders of ornamental grasses were also very attractive.

Scientific Exhibits.

A special tent was set aside to exhibits of scientific interest and the East Malling Research Station showed a highly educational group concerned principally with the relationship of stock and scion of fruit trees. By the aid of photographs and specimens, methods were given as to how to identify the different types of Plum stocks and it was shown that the time of flowering and the floriferousness of the tree varied considerably according to the stock upon which the variety was worked. For instance, the variety Victoria, when worked on Brussels stock, produced fewer flower trusses, and opened later than when the same variety was grown on the Julien stock. It was also demonstrated that certain varieties will not "take" on different stocks, and even where the bud does grow, a satisfactory tree rarely results. The variety President gives normal growth when grown on Brompton, whereas the growth is poor when Brussels is used as a stock. Similar divergence obtains with Peaches, Hale's Early producing good trees on Brompton and poor growth on Myrobalan. The method of layering Plum stocks was shown and a table demonstrating the behaviour of the growth of the principal varieties of Plums worked on different stocks, proved that where seedling Myrobalan was employed as a stock, strong trees resulted; on the other hand no strong growth was made on Brussells, one of the commonest of stocks and the most unsatisfactory of all.

The relationship between the stock and the susceptibility of the variety to silver leaf is also receiving attention at East Malling. The tentative results are uncertain but it is of interest to note that Victoria is highly susceptible, no matter what kind of stock is employed, and it appears to be worse on Myrobalan, a stock which, in itself, is immune to attack.

The identification of varieties of Raspberries and Black Currants is being investigated, for the nomenclature of these soft fruits is in outrageous confusion. Of sixty-two Raspberries received at East Malling, no fewer than ninety-six different varieties were sorted out. Bath's Perfection masqueraded under nine names and Beauforth's Seedling is appended to no fewer than eight varieties. Efforts are being made to standardise identification characters according as to whether the foliage is curled or flat, or the canes glabrous or pubescent, or the spines dark or pale. Similarly with Black Currants, identification characters include shape and position of foliage, and length of flower and fruit cluster. Boskoop Giant possesses very large foliage with long, pointed lobes, and the flower and fruit cluster is long and loose; Goliath has small, drooping foliage and short clusters of flowers and fruit.

Included also in this exhibit were specimens and drawings of reverted Black Currants, showing leaf and flower characteristics by which affected bushes can be readily determined. The flowers of a healthy bush are tinged with a bluish-purple colour, whereas in reverted bushes the colour is pinkish-purple, the difference being due to the absence of pubescence on the reverted flowers.

A large and varied exhibit came from the R.H.S. Laboratory, Wisley. In the entomological section the chief spray fluids were shown, including nicotine and paraffin emulsion (contact washes), lead arsenate (stomach poison), and caustic soda, lime sulphur, and paraffin emulsion (winter sprays), together with the types of nozzles to use with each spray. Specimens of many root aphides found on wild and cultivated plants were also exhibited, and there were also some admirable photomicrographs of the Phlox eelworm (Tylenchus devastatrix) and specimens of affected plants. Symptoms of this serious trouble are indicated by the cracking of the stem, the peeling of the leaf epidermis and the wrinkling of the foliage. The variety La Mahdi is highly susceptible and Rijnstroom is markedly resistant. Pots of plants representing the various crops used for ploughing into the land in a green state were exhibited and these included Turnips, Rye, Oats, Rape, White Mustard, and the Leguminous crops—Clover, Black Meddick, Vetch, and Red Clover. The Mycological Department provided specimens of many serious diseases which are under investigation. Plants of Antirrhinums affected with Sclerotinia sclerotiorum were shown. This fungus bears an apothecial stage, the spores being probably conveyed to the flowers by bumble bees.

There were six grafted plants of Rose America imported from the United States and all were infected with Coniothyrium, while diseases of Sweet Peas, Asters, Carnations, Tulips and Narcissi were also exhibited. Photographs illustrating the various types of Dahlias, Sweet Peas, Carnations and Chrysanthemums were displayed, and there were many charts and tables showing the results of many interesting fruit experiments conducted at Wisley.

From the Department of Agriculture, University of Leeds, came a noteworthy exhibit. The various diseases of Potatos were shown by means of pickled specimens and photographs, and amongst these were corky scab (Spongospora subterraneea), common scab (Actinomyces scabies), and wart disease (Synchytrium endobioticum). The life histories of the Carrot fly (Psila Rosae), Cabbage root-fly (Chortophylla Brassicae), and Onion fly (Hylemyia antiqua) were admirably shown, and there were also living specimens of two insect friends of the garden—the Devil's Coach-horse, and the Ground Beetle—feeding upon wireworms. The Crown Rot of Rhubarb, a bacterial disease which has proved very troublesome to commercial growers, has been investigated at Leeds and specimens and photographs, both in black and white and coloured, were also to be found in this excellent and instructive exhibit. There was also a very simple test for soil acidity demonstrated; this is performed by pouring an alcoholic solution of potassium thiocyanide on the sample of soil, shaking, and if the solution remains colourless no lime is required, but should the solution turn brownish-red the addition of lime to the soil is necessary, the depth of the colour of the solution determining the quantity of lime required.

Specimens of living plants affected by Plowrightia Ribesia, on Currants; Podosphaera Leucotricha, on Apples; Puccinia Menthae, on Mint; Puccinia Prunuspinosae on Anemone coronaria; Endophyllum Sempervivi on House Leek; and Puccinia Vincae on Periwinkle were shown by the School of Agriculture, Cambridge.

Mr. **James McDonald** displayed carefully prepared dried specimens of grasses and Mr. H. T. **Hayes** showed a pigmy twelve year old Ash tree not more than two-and-a-half-inches high.

Messrs. **Hearson and Co.** exhibited their bulb sterilizing bath for the hot-water treatment of Narcissus bulbs affected with eelworm, together with dodder machines and seed-testing appliances

Art Exhibits.

Many very interesting paintings in oil and water colours were on view in tents and kiosks in the Sundries Avenue. In several instances two artists shared "galleries" and in so doing increased the attractions of the display. A great variety of subjects were attempted, usually with conspicuous success. As befits the season Bluebells, in thin woods—one could often recognise Kew, with and without the Queen's Cottage—meadows of Daffodils, and the Rhododendron Dell at Kew were the most popular subjects. Early summer flower borders, often with attendant Rose arches, and formal gardens came next, while there were, of course, numbers of flower studies.

Alphabetically, and in position in the avenue, Miss M. **Angell** came first and she filled a tent with a desirable selection of her water colour work. Miss Bertha **Corey** chiefly showed flower borders and studies. A border, largely of Delphiniums in front of an old red brick wall, with a very characteristic Cedar of Lebanon behind, and vases of Roses and Foxgloves greatly attracted us. Miss E. N. **Cowell** showed garden plans. Miss **Edith Fisher** and Miss **Eva Savory** shared a commodious Motor House built by Messrs. Boulton and Paul. Miss **Savory's** subjects included a delightful jar of Wallflowers, another of Marigolds and a dainty bowl of stellata Primulas. Garden scenes in Miss **Fisher's** collection were equally charming; notably a garden at Sandgate and a view in Hampton Court. Old-fashioned jars of Wallflowers, red and yellow of considerable beauty, were also contributed by Mrs. M. E. **Hare**.

In the tent jointly filled by Miss F. **Pilkington** and Miss H. L. **Bell** the paintings that appealed greatly were of herbaceous borders, with life-like Delphiniums, Bluebells at Kew, borders of Lavender with an arch of Roses and a creeper-clad archway. Miss **Margaret Linnell** showed, amongst her many paintings, a small but charming study of a spray of Fuchsia Rose of Castille, and a rather larger, but still small, vase of Dimorphotheca aurantiaca. These were unnamed, but their identity was unmistakable. Portions of flower borders showing clumps of Grape Hyacinth and Crocuses were also most faithful.

London gardens, including an Eccleston Square garden, the Dean's Yard, Westminster, and a paved garden with fine old trees in the background, were well shown by Miss B. E. **Lowenthall**. Miss E. M. **Kirkpatrick** was particularly successful in protraying the hazy pinkness of rounded little trees of Pyrus spectabilis, the cloudy blue of the Bluebells, and also the Rhododendron Dell at Kew. Amongst Mrs. M. **Townsend's** pictures was one of Water Lilies and Rushes, which had been purchased by the Queen. She was also very successful with the misty blue of the Bluebells in woods and with the yellow of Daffodils in grass land on the margin of a mature wood

Miss E. **Warrington** also had the pleasure and honour of selling a picture to the Queen. This was of an old and densely flowered Wistaria against a garden wall, with a Lombardy Poplar in the background—a most delightful picture.

Sundries.

The displays of sundries were, as usual, arranged along the sides of the two avenues, and garden furniture, lawn mowers, spray fluids, manures and greenhouses were freely exhibited.

Messrs. **Wm. Wood and Son, Ltd.**, Taplow, exhibited a span-roofed greenhouse, together with gardening tools, labels, insecticides, spraying machines and lawn mowers. Opposite the same firm constructed a small formal garden approached by a stone-paved pergola of Oak and enclosed by screens of different designs. Here was to be found a very good type of fruit room, thatched with a 12-inch thick roof of Norfolk reed and entered by double doors. Louve ventilators were fitted and the racks had movable labels with the varietal name, season and class of the fruit neatly imprinted. Another fine feature was the garden house made with sawn Elm boards and Oak shingled roof. The floor was of stone and the sides were open. Statuary, in lead and stone, and garden seats of teak, were to be found in great assortment.

Messrs. **Boulton and Paul** showed frames, rose arches, summer houses, revolving shelters and a number of photographs illustrating large conservatories and greenhouses, typical of work undertaken by the firm. A little model of the Boulton Water Elevator was also shown. It is of simple device and can be worked on wells up to four hundred feet deep.

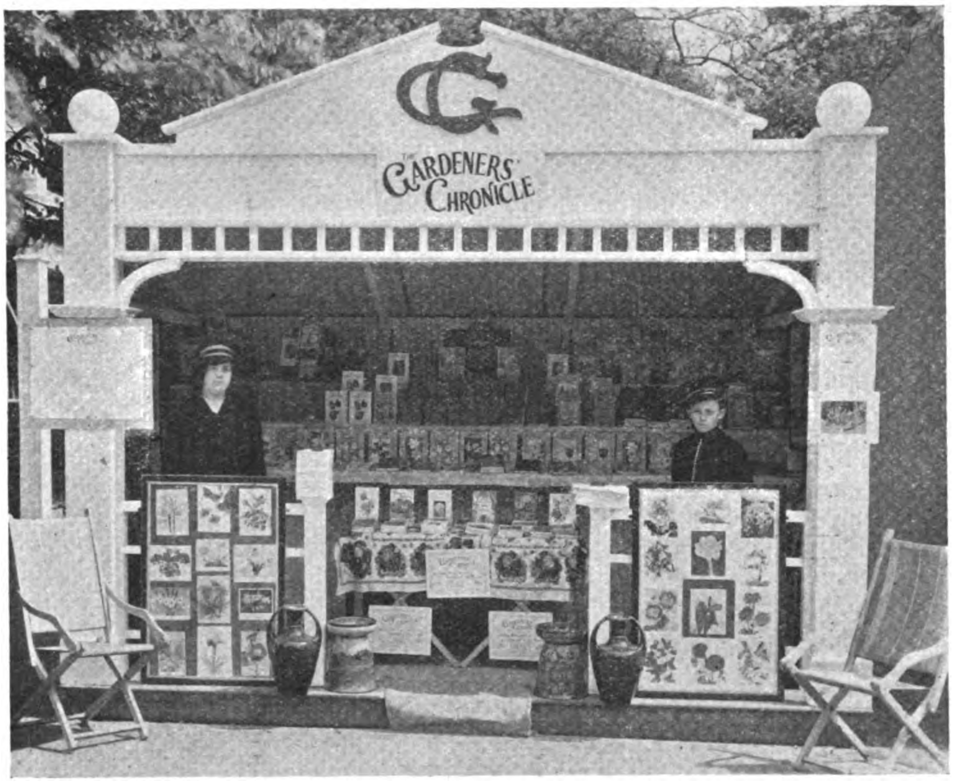

FIG. 152.—"THE GARDENERS' CHRONICLE" KIOSK AT THE CHELSEA SHOW.

Garden furniture was shown in variety by Messrs. **Harrods, Ltd.**, and consisted of garden chairs, tables, summer-houses, and rustic work in neat design, and Messrs. A. W. **Gamage, Ltd.**, were also responsible for a very wide assortment of shelters, large coloured umbrellas, swing-hammocks, deck chairs, and other garden furniture, as were also Mr. E. **Pocock** and **The Papworth Industries**. Cane chairs and tables were shown by **Dryad Cane and Metal Works**.

Two types of span-roofed greenhouses were shown by Messrs. **Messenger and Co.**, one measuring 20 feet by 16 feet and serviceable alike for Carnations and general plants and the other an amateur's house, 12 feet by 8 feet. The larger house was fitted with a wooden-lath roof blind. Garden frames of stout construction were also included in the exhibit together with specimens of two sizes of the Quorn boiler.

Messrs. **Sanders and Co.** showed a charming selection of garden statuary, weather vanes, bird baths, etc., and similar displays came from Messrs. **Kelly and Co.** and Messrs. A. H. **Morton, Ltd.**

Messrs. **Skinner, Board and Co.** displayed their wire tension greenhouses of various shapes, constructed with strong iron rafters. No putty is used, the glass being fixed by means of clips, thus giving a full surface of glass and uninterrupted access of light. Messrs. W DUNCAN TUCKER AND SONS, LTD., built a large conservatory, 20 feet by 15 feet, with lantern roof and also exhibited a neat, span-roofed greenhouse as well as a large variety of garden frames.

Tents, deck chairs, hammocks, and shelters were shown in many different styles by Messrs. PIGGOTT BROS. AND CO.

The well-known Bisson tubular and the Rochford tubular boilers were shown in many sizes and designs by Messrs. C. P. KINNELL AND CO., LTD., the new tubular type called the Twin Fire was also on view; it is compactly built and has a large capacity. The Ideal and Robin Hood sectional boilers, ventilating gear, and the Vulcan soil sterilizer were other items of interest.

Messrs. HUGHES, BOLCKOW AND CO. AND CASTLE SHIPBREAKING COMPANY, LTD., brought many designs of garden seats, chairs, tables, etc., made of Teak wood, and THE WILKINSON SWORD CO., LTD., exhibited pruning shears, knives and scissors, constructed of high quality English steel. Mr. W. UNWINS had an exhibit of rustic work, rockery stone, and garden furniture, and Messrs. E. COOK AND CO., LTD., showed a variety of fertilizers, nicotine washes and Gyp, a useful insecticide.

THE KEY FERTILIZER CO. showed a piece of lawn under treatment with their lawn fertilizer and illustrated how, in a short space of time, rank meadow land may be transformed into a good lawn by the judicious use of their special manure.

THE LONDON GARDENS had a very attractive group of flower bowls and vases in papier maché and china, and included in the group were some magnificently arranged baskets of Hydrangeas and bouquets of Carnations.

Messrs. CORRY AND CO. had a neat stand on which were exhibited their many specialities, including Niquas, a non-poisonous insecticide; Lethorn fumigators; Summer Cloud shading; Wasp-nest Destroyer; Tenax grafting wax and White Fly Fumigant.

THE SOUTH METROPOLITAN GAS CO., were responsible for a very pleasing exhibit arranged in an open summer house. There was a geneological tree grown by the Company which represented thirty-five different chemical products obtained in the distillation of coal and the purification of gas. One of these products is Sulphate of Ammonia, the Metro brand possessing many advantages; it is acid free, and of the consistency of sand thereby rendering its distribution easy and even. The Metro Wood Preservative was also displayed, the summer house having been treated with this product.

Messrs. R. MELHUISH, Ltd., exhibited gardening tools of every description, including lawn levellers, rollers, mowers, knives, and a new combined edge cutter and trimmer; one of the features of the stand was the Melhuish spade in various processes of manufacture. Garden furniture and fruit racks were shown by the PAPWORTH INDUSTRIES, while Messrs. ALLWOOD BROS. showed their specially prepared Carnation food, insecticides, perfumes, labels and supports. Boxes of plants, as packed for export, proved a very interesting item in this exhibit.

Messrs. G. MONRO, Ltd., had a large and attractive stand of horticultural sundries and demonstrations in the use of Puttium, a new glazing cement, were frequently given. The Acme Utility Truck, made long and narrow so that it may be conveniently run between the gangways of greenhouses, was also shown together with vases, bowls, Tomato boxes, Carsolombra shading, hoses, etc. The Alvesco specialities, for which this firm are sole agents, were given prominence in the exhibit.

Mr. H. J. G. WOOD showed the Willmott Rival Plant Stake, an excellent device for readily staking herbaceous and pot plants, and made in a wide range of sizes. The stakes are made of steel galvanised wire.

Mowing machines were a feature of the exhibit of the GODIVA ENGINEERING CO., who showed their Godiva and Marvel types, hand and petrol driven. The machines are constructed in indestructable pressed steel instead of cast iron and are light and strong. The patent cutting adjustment is unique for it is regulated by a large thumb screw fitted near the handles.

The STONEHOUSE WORKS CO. showed a large selection of their proprietary fertilizers and spray fluids, the former including Potoma, for Tomatos and Vitalizer, for fruit and flowers. A1 Reinforced Nicotine Wash, which will not clog the syringe or stain the paint of the greenhouse; Kilzall insecticide and A1 lawn sand were other useful specifics noted in this very attractive exhibit.

The noted Atco motor lawn-mower, which has found favour for its simplicity of operation, was shown by Messrs. CHAS. H. PUGH, Ltd. The mower is fitted with a cutting cylinder of nine blades and has a large capacity grass box The engine is the Villiers two-stroke pattern and there is a special independent cutter release gear. The Atco turf cultivator, a device which obviates the use of the rake, harrow and heavy roller, and which may be attached in front of the cutters, was also included in the exhibit.

Extension ladders, sliding wheel trucks and barrows were shown by Mr. H. C. SLINGSBY. Messrs. J. CARTER AND CO. had a complete display of gardening sundries, cutlery, etc The Stoakes combination lawn edge trimmer and cutter, which is fitted with a knife adjustable to shallow or deep edges, attracted attention as did also the Upchurch pottery vases made in beautiful art shade. The chief makes of lawn mowers were also shown in variety.

Gardening gloves in many patterns were shown by Miss A. EVERETT. Messrs. T. J. SYER AND CO. had a good selection of garden furniture, while from Messrs. G. HAYWOOD AND CO. came a display of greenhouses and heating apparatus.

The FOUR OAKS SPRAYING MACHINE CO. had an extensive display of their famous knapsack, bucket sprays and spraying machines adapted for a variety of purposes and constructed to overcome the many irritating difficulties of the grower.

Mr. J. W. HARVEY exhibited Fibrex pots, made of a special material impregnated with plant foods, and the WOODWORKERS, Ltd., showed the Letchworth wall frame, designed for protecting wall trees during cold, sunless weather, and the Letchworth propagating frame for cultivating seedling plants; the frame is divided into three chambers, enabling three distinct temperatures to be obtained.

Messrs. A. SHANKS AND SONS displayed two designs of motor lawn mowers—The Geugh and The Wizard. The latter has a separate clutch to take same in and out of gear, and the machine is fitted with differential drives which greatly facilitates turning. Hand machines included the Caledonia, Talisman and Britisher types. The Pattisson horse boots, brushes and scrapers, weeding tools, and a variety of implements of sound construction were shown by Messrs. H. PATTISSON AND CO. and THE BRITISH OVERHEAD IRRIGATION, LTD., demonstrated their Boil system of irrigation, an excellent labour-saving device for watering extensive areas of ground. There was also the En Tout Cas rotary lawn sprinkler shown in action and it gives a fine or coarse spray and will cover a circle adjustable up to eighty feet diameter.

Close by THE COOPER-STEWART ENGINEERING COMPANY, LTD., showed the Rain King lawn sprinkler, adaptable for revolving and stationary use, and which will give a coarse spray or fine mist according to requirements. Mr. J. SINGLETON displayed the Nuespray, a device for fixing on watering cans and allowing of the even distribution of water. Mr. T. WEST CARNIE had an attractive group of Jacobean white glass and coloured vases, while from Mr. E. SYDNEY came the Ideal flower displayer.

Messrs. THOMAS GUNN, LTD., staged a large and comprehensive display of garden requisites and Mr. J. HAWS showed a number of designs of watering cans constructed for special purposes and fitted with well finished roses.

The J.P. Super lawn mower made of solid steel and aluminium, was shown by the J.P. SUPER LAWNMOWERS, LTD.; all the bearings of this machine run in oil and it is made in two sizes, twelve and sixteen inches. The rotary cutter is on ball bearings, thereby rendering the machine very easy to work.

Messrs. T. H. WEBSTER AND SONS demonstrated the practibility of their Cascade nozzle for fitting to water cans and hoses and also showed Neverfade metal labels, which are waterproof, the writing being performed by means of a nail or other hard point.

Fibrous yellow turf loam was shown by Mr. A. B. JOHNSTON, and the illustrations of fruit and flower crops growing in it proved its high fertility. Messrs. WM. COOPER, NEPHEWS, LTD., brought a wide selection of spray fluids, Aperite, a soil fumigant; Tactite, for tree banding; and Weedicide, for destroying weeds on garden paths, drives, etc.

Messrs. McDOUGALL AND ROBERTSON, LTD., made a feature of Katakilla, a powder insecticide wash which is easily prepared and very effective; Arboretas, a winter wash; Celerite, a slug powder; and Ostico banding for fruit trees. Spraying and lime washing machines of good construction and finish were shown by Messrs. MARTINEAU AND SMITH, and Medox pruning shears and hand saws in a large range of patterns were staged by Mr. C. A. JARDINE.

Messrs. ABOL LTD. showed samples of their manures for special crops, such as Roses, Sweet Peas, Potatos, Chrysanthemums, Tomatos, and also exhibited their well-known Abol insecticide, White Fly Compound, and syringes.

Messrs. HOLTZAPFEL AND CO., LTD., brought a large collection of gardening tools, a spade boot-scraper, weed extractors and flower gatherers in the form of walking sticks, and a novel device for gathering Currants. Observation hives of living bees, bee-keeping appliances, and a collection of bee-hives were shown by Messrs. C. T. OVERTON AND SONS and Messrs. E. H. TAYLOR, LTD. THE LORD ROBERTS' MEMORIAL WORKSHOPS showed garden furniture and baskets. THE DISABLED SOLDIERS' EMBROIDERY INDUSTRY brought garden aprons, baskets, etc.

Tomatorite, a special food for Tomatos, and Ichthemic Guano, a highly concentrated plant food, were too prominent articles shown by Messrs. PRENTICE, BROS., LTD., and the ECLIPSE SPRAYING COMPANY showed the Eclipse Sprayer, which is adaptable to any class of spray work and fitted with hose, extension lengths, and nozzles. The Eclipse vaporiser, of excellent construction, was also shown.

Preserving jars and neat preserving apparatuses were exhibited by Messrs. PERCY CLARK AND CO., and Messrs. FOWLER, LEE AND CO. THE POTTERS ART GUILD showed a number of sundials, bird baths, garden pots and vases, in red, grey and white terra-cotta. JEYES' SANITARY COMPOUNDS CO., LTD., had a display of winter and summer horticultural washes, Nicotine spray and insecticides in powder form, while from Messrs. DREW, CLARK AND CO. came a large group of patent extension ladders, folding tressels, and platform steps.

Messrs. RANSOMES, SIMS AND JEFFRIES, Ltd., showed motor and hand lawn mowers. The former are compactly built and easily handled, and are fitted with a double silencer to minimise the noise. Their Marquis, Lion and Automoton models were exhibited as well as the M.P. Pusher for attaching to the larger machines.

Garden ornaments, including figures, Roman seats, sundials and vases were brought by Messrs. J. Pulham and Son, and Mr. John Pinches showed a large selection of Acme labels, made on hard rolled zinc with raised letters, together with exhibition boxes and stands.

Messrs. W. Voss and Co. staged their well-known insecticides and fungicides, including Carlton arsenate of lead paste, Borderite, Blighty, Pterokyll and safety cyanide packages for fumigating greenhouses. Lawn sand, nicotine insecticide, weedkiller, mushroom spawn and samples of yellow loam were to be found in the large exhibit from Messrs. H. Scott and Sons, and Radium fertilizer, a complete plant food, was shown by The Radium Fertilizer Co.

Messrs. Robinson Bros., Ltd., had a pleasing group in which their Multiple and Carmona fertilizers were advantageously displayed. Other items were Velvas lawn sand, Eradiweed and Carmona Anti-Clover lawn manure, together with spraying syringes and sundries.

Motor lawn mowers were shown by Messrs. Dennis Bros., Ltd.; they are fitted with 4-H.P. engines and a trailing seat may be attached. There are two independent clutches for cutting or combined rolling and cutting operations.

Garden tables in large variety were included in the group from Messrs. Abbott Bros., and Major C. Walker showed a device in netting for protecting fruit trees. The Continuous Cloche for protecting and gaining early crops was exhibited by The Chase Continuous Cloche.

Jams, jellies and confectionery were shown by Mrs. Miller, Miss H. G. Sewell and Messrs. E. Westmacott and Co., while from Poole's Vacuum Preserving Jars, Ltd., came a display of jars for fruit and vegetable preserving.

Just near the entrance The Gardeners' Chronicle, Ltd., had an attractive kiosk containing horticultural books, *The Horticultural Directory* and other garden literature, and The Garden, The Cable Printing and Publishing Co., The Gardening Illustrated, Popular Gardening and The Hortus Printing Company, were also represented.

FÉDÉRATION HORTICOLE PROFESSIONNELLE INTERNATIONALE.

The annual Conference of the International Professional Horticultural Federation was held in London on May 28 and 29. Conference meetings were held at the Connaught Rooms, where ample space was provided for the international delegates.

It is the custom of the Federation to appoint its president for the year from the delegates of the nation in which the conference is to be held, consequently a Britisher occupied the position this year and Mr. E. A. Bunyard carried out his duties in an altogether admirable fashion.

The General Secretary, M. E. Turbat, and the Assistant Secretary, M. Réné Barbier, were present, together with several of the vice-presidents. The French representatives included M. N. Levavasseur, M. Ernest Levavasseur, M. A. Levavasseur, M. Lecolier and M. Leon Barbier. Those representing Belgium were M. van Orshoven, M. F. Spae, M. J. Reuter, and M. Praet; those representing Holland were Messrs. E. H. Krelage, B. Ruys, J. van Til, R. V. Van Zanten, J. Smits, T. Wezelenburg, P. Den Ouden, A. S. Rijnieres, H. C. Valeton, B. Gerritzen (the State export horticulturist attached to the Dutch Legation in London), Dr. Van der Loog and Dr. W. F. Wery. Switzerland was represented by Messrs. A. Stahel and F. Peter, while the British representatives were Messrs. W. G. Lobjoit, and H. V. Taylor. representing the British Government; Messrs. J. Harrison, Jnr., G W. Leak, G. Monro J. S. Brunton, A S. Galt, T. Parker, and S. W. Hale, representing the Chamber of Horticulture; Messrs. W. R. Oldham, W. Cuthbertson, C. E. Pearson and C. G. DuCann, representing the Horticultural Trades' Association; Messrs. W. E. Wallace, A. W. White, D. Ingamells, and C. H. Curtis, representing the British Florists' Federation; and Mr. G. Arluison, the International Secretary for Great Britain.

Mr. Bunyard opened the proceedings by extending a very hearty welcome to all the foreign delegates and commenced business very shortly after 2.30 p.m. on the opening day. Vice-presidents and international secretaries were speedily appointed and the Minutes of the Conference held at Ghent in 1923, having been published, were taken as read. Then followed the report of the General Secretary, which made reference to the British regulation against the Colorado Beetle; the appeal to the League of Nations and the question of the American prohibition of plant importations and the reply pointing out that at present the League could not intervene on this matter. Regret was expressed that the American Florists' Association did not wish to join the International Federation, but from correspondence which has taken place hope was expressed that Canada would come into the Federation next year. Italy, unfortunately, was not in a suitable financial position to send its delegates and it appears that a horticultural trades' association has been formed in that country. Correspondence has taken place with Denmark, but the horticultural organisation there is not one of the trade only, consequently no satisfactory result has obtained. This report was accepted, as also was the report of the Treasurer, M. Sauvage, which showed that the Federation had a balance in hand of over two thousand francs on the 23rd of May.

Reports were submitted by the several countries belonging to the Federation and the one from Belgium, prepared by M. C. Pynaert, proved very interesting, as it dealt in very great detail with the whole subject of the American prohibition of imports. Considerable discussion took place on this subject, and eventually the conference agreed to follow the findings of the conference at Wageningen. It appeared that the total exports from Belgium in 1923 were valued at twenty-eight million francs, as against twenty millions in 1922. Mr. Valeton presented the report for Holland, which showed that the export of flowers from Aalsmeer were to the value of 534,000 florins in 1923, and 615,000 in 1922, while the export of trees and shrubs from the Boskoop district were valued at four-and-a-half million florins, or four hundred thousand florins more than the exports of 1922. With regard to bulbs, the exports were valued at 26,383,000 florins, as compared with 22,641,000 in 1922. Reference was made to the interesting and useful phytopathological conference held at Wageningen in June last and its efforts to find a way out of the difficulties that have arisen owing to the American prohibition regulations.

The report from France complained of unfair competition in the north and east caused by German goods imported through Belgium or Luxemburg. Complaint was also made against the method employed by a certain Dutch firm, and this matter was eventually discussed and dealt with in Committee. Landscape gardeners appear to be busy in France, but complaint was made of a shortage of labour, though on the whole the position of the horticultural trade in France appears to be satisfactory.

In the British Report the opinion was expressed that the year 1923 was not an altogether satisfactory year for commercial horticulturists, owing very largely to unkind climatic conditions. It was shown that United States Regulation No. 37 continues to hinder trade with America, and hope was expressed that better conditions might eventually be obtained. The cut flower and pot plant trade appears to be satisfactory, and supplies have now reached the pre-war level. The seed trade appears to be prosperous and the nursery trade maintains its general position, although growers are complaining of the great increase in foreign competition.

The report of the International Registration Bureau was presented, and showed that this has not been utilised as freely as it should be seeing that it is the means of registering the names of new plants and flowers in all the countries belonging to the Federation. Ten plants or flowers were registered, one from Great Britain, one from Belgium, and the others from French raisers.

On the subject of international transport there was no general report, but in reviewing the general situation the question of undesirable firms arose, and it was agreed on the proposal of Great Britain, seconded by Holland, that the various associations should exchange each year confidential lists of firms it is considered undesirable to deal with.

Tea was served during the afternoon session and the meeting closed about 4.20.

The conference was resumed at 9.30 a.m. on Thursday, May 29, when the question of International Arbitration came up for discussion and several reports were presented, including the report of the Arbitration Sub-Committee. This discussion occupied some considerable time and eventually it was agreed that the various trade organisations should recommend their members to adopt and use the *Rules of Conciliation* now adopted by the International Chamber of Commerce, and persuade their members to settle their difficulties by this means rather than by litigation. Phytopathological questions and the very important subject of import prohibitions were discussed together, and at some considerable length, and finally, as suggested on the previous day, the Conference passed a resolution asking for a further conference in Washington to discuss the whole subject of importations and diseases with a view to securing reasonable freedom in the circulation of plants among the nations of the world, with the reasonable safeguard of a certificate of health. A further resolution was in the form of a request that the Horticultural Federal Board of the United States should give liberal notice to European exporting countries of intention to exclude stocks for Roses and a two year's notice was suggested with a view to prevention of loss in Europe.

There was nothing new to discuss under the subject of dumping and the Dutch delegates pointed out that they were doing their very best to prevent dumping of Dutch produce in England, but were unable to bring any direct pressure to bear upon firms who did not belong to any of their trade organisations.

On the question of customs duties, Mr. Monro urged the French delegates to do all they could to secure the free admission of British flowers into France and pointed out that while very large quantities of flowers were imported from France to England, comparatively few, and those only of the choicer kind, were exported to France, and whereas French flowers were admitted free to England a fairly heavy custom duty was placed on English flowers sent to France. The French delegates promised to do what lay in their power, but once again pointed out that the French Customs duties on imported flowers were imposed chiefly to prevent undue competition from Italy.

The conference agreed that it was desirable that there should be a general classification of import duties and railway rates, and this should be presented in the form of a report at the next annual conference.

Two questions affecting only the British and Dutch sections were discussed by the delegates of these countries at the close of the conference.

The next international conference will be held at Haarlem, probably about the middle of May next year, and Mr. Ruys was appointed President for 1924 to 1925. Although in the ordinary course of things the conference would have been held in Paris in 1925, the French delegates graciously withdrew in favour of Holland in view of the great international exhibition which is to be held in Haarlem next year, but it was generally agreed that the conference should be held in Paris in 1926. Mr. G. W. Leak was appointed vice-president for the ensuing year; M. Sauvage, Treasurer; M. Turbat, Secretary; and M. Rene Barbier, Assistant Secretary.

Mr. Lobjoit, who was present, offered a few words of welcome on behalf of the British Government, and Mr. Spae and Mr. Krelage extended the thanks of the foreign delegates to the British section for their kindness, the hearty reception accorded them, and the admirable way in which Mr. Bunyard and all concerned had made and carried out the arrangements for the Conference.

The foreign delegates visited the Chelsea Show on its opening day, and it was a graceful act on the part of the President and Council of the Royal Horticultural Society to entertain the delegates at dinner, and all who were present on Wednesday, May 28, at the Hotel Cecil must have carried away a very pleasant impression of the ceremony. Any dinner presided over by Lord Lambourne, President of the Society, is bound to be a cheery function, for he joins with a rare interest in horticulture a happy and kindly humour, which is the best sauce which can be served at a dinner of any kind. The guests present, among whom were many distinguished horticulturists, owe a particular debt of gratitude to the Society for the studied brevity of the toast list. Of the guests from abroad, Mr. Krelage and M. Turbat, the former speaking in English and the latter in French, responded in eloquent terms to the toast of the evening, that of "La Fédération Horticole Professionnelle Internationale," and General H. C. Sutton was no less happy in proposing the toast of "The Royal Horticultural Society and its President." In the course of his reply, Lord Lambourne stated with justifiable satisfaction that the success of this year's Chelsea Show bids fair to eclipse that of all previous exhibitions. No fewer than 30,126 visitors attended on the first day and the number was surpassed by over five thousand on the second day.

At the conclusion of the conference proceedings on the Thursday, the foreign delegates were entertained to lunch at the Connaught Rooms by the Chamber of Horticulture, the Horticultural Trades' Association, the British Florists' Federation, and the Horticultural Club. These associations also combined to entertain the delegates to dinner and a musical entertainment at the Trocadero Restaurant during the evening of that day. On the following day a visit was made to the East Malling Experimental Station, and in the evening the British Government entertained the members of the conference to dinner at Lancaster House, St. James', after which the party viewed the collections at the London Museum under the guidance of Mr. W. Lawrence.

ROYAL SCOTTISH ARBORICULTURAL.

By the kind permission of Viscountess Cowdray, the proprietrix, the members of the Aberdeen Branch of this Society are to have the privilege of visiting and inspecting the woods, policies, and gardens of Dunecht on Saturday, June 7. Situated some eight miles from Aberdeen, many thousands of pounds have been spent by Lady Cowdray since she purchased the estate in beautifying and improving the mansion house and its surroundings. Queen Mary has visited Dunecht, and it is more than likely Her Majesty will do so again when the Court is in residence at Balmoral during the autumn.

Lady Cowdray has kindly offered to provide luncheon to members during the visit, and, given favourable weather, the members should have a very interesting and enjoyable excursion.

BRITISH FLORISTS' FEDERATION.

The Market Floral Committee of the British Florists' Federation met on Monday, May 26, in Messrs. Monro's Sale-rooms, Tavistock Street, Covent Garden. Some Carnations presented for consideration were not in good form and also insufficient in number for the purpose of determining their quality

A *Preliminary First Class Certificate* was unanimously awarded to *Dianthus Mascott*, which is a hybrid between a Border Carnation and Scarlet Beauty Sweet William. It is a robust growing plant with the upright habit of the Sweet William and with heads of large, bright salmon flowers, each of good size. Both as a hardy plant and as a pot plant there appears to be a good future for this hybrid. It was exhibited by Messrs. Andrew Ireland and Hitchcock, Marks Tey.

A *Provisional Award* was also made in favour of *Sweet Pea The Beacon*, which appears to be the most brilliant of the golden-orange varieties. It has flowers of excellent form and size.

Both in the case of the Dianthus and the Sweet Pea the actual awards will not be made until after a deputation of the Floral Committee has inspected them growing in quantity and satisfied themselves as to the excellence of each, and we understand that an early visit will be made to Marks Tey at the invitation of Messrs. Ireland and Hitchcock.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The Monthly meeting of this Society was held in the R.H.S. Hall on Monday, May 12th, Mr. T. R. Butler presiding. Three new members were elected. Six members withdrew interest from their deposit accounts amounting to £18 18s. 8d., and three members over the age of seventy years withdrew £28 from their accounts, while the sum of £12 6s. 3d. was passed for payment to the nominee of one deceased member.

The sick pay for the month on the private side came to £96 3s. 4d, and on the State side £91 7s. Maternity benefits amounted to £12. Grants amounting to £38 18s 1d were passed for dental treatment. £3 2s 3d. for optical treatment and 5s. 8d. for surgical treatment.

AMERICAN ORCHID.

Although the American Orchid Society is but young, it has already made a name for itself as regards enterprise and effective organisation. For some months in advance preparations were in progress for the International Orchid Exhibition, held at Boston from May 8 to May 11 in the spacious building of the Massachusetts Horticultural Society. From the time of opening, the large halls of the Society were crowded with visitors; in fact, no fewer than 28,000 people attended the show on the Sunday, while many thousands were unable to obtain admission.

The chief attractions were the praiseworthy exhibits of Mr. Albert C. Burrage, President of the Society, and these entirely filled one of the large halls. The ambition of this amateur was to give, through bird's-eye views, a general idea of the wide distribution and variety in form and colour of the best-known wild species, and then, by separate groups a clearer conception of the habitat and environment of the popular genera.

All these ambitions were fully realised. At one end of the hall over a hundred tons of rockwork were built up to a height of forty feet, and from the top water splashed down at the rate of 180 gallons a minute. Terrestrial Orchids were planted in suitable places, while on a tree-trunk in front, weighing three tons, a selection of epiphytal kinds were placed in realistic style. Coconut Palms, some fifty feet in height, and weighing about five tons each, had been specially brought from Florida, nearly 2,000 miles away, and these, placed around the sides of the hall, formed a fine background. Large Bamboo huts, with the roof and sides thatched with Palm-leaves, were erected in the section devoted to Philippine Orchids, and also in that reserved for the Burmese kinds. Suspended from the roofs of these huts were finely-flowered examples of Phalaenopsis and other species, the whole effect being entrancing in the extreme.

Along the side of the hall Mr. Burrage had a magnificent group of rare species and handsome hybrids, the centre plant being a fine example of Brasso-Laelio-Cattleya Jupiter, which won the Silver Cup presented by members of the English Orchid Trade for the best Orchid in the show. On the opposite side of the hall, this enterprising amateur had arranged several large trees, the branches of which were covered with various Orchids all arranged in geographical sections. Thus, there was an area devoted to plants of Madagascar, another to those of Colombia, etc., while on the ground were many species and hybrids of terrestrial habit. The Gold Medal of the Royal Horticultural Society was awarded to Mr. Albert C. Burrage in recognition of the great encouragement given by him to horticulture, as well as for the educational value of his respective groups of Orchids.

In a smaller hall Mr. Burrage exhibited almost the whole of his library of Orchid books, totalling well over 500 volumes, and including complete sets of the *Botanical Magazine*, the *Botanical Register*, and the *Orchid Review*. These books were openly displayed on long tables, while around the walls were suspended about a thousand original water-colour drawings of Orchid species and hybrids.

Other amateur exhibitors included Mr. F. E. Dixon, Elkins Park, Pa., who had an attractive group in the central area of one of the halls; Mr. Clement Moore, Hackensack, N.J., well-known for his fine Cattleyas; Mr. Arthur N. Cooley, who staged a rich collection of species and hybrids; Mr. Edwin S. Webster, Chestnut Hill, Mass., an exhibitor of Miltonias in fine form; and Mr. E. B. Dane, to whom the Society was indebted for an attractive exhibit at the end of the smaller hall.

Trade growers were represented by Mr. J. T. Butterworth, Framingham, Mass., who had an artistically arranged group; Mr. Thos. Roland, Nahant, Mass., whose plants were attractively arranged on trunks of trees; Mr. George Baldwin, Mamaroneck, N.Y., who had the best original arrangement; Messrs. Lager and Hurrel, Summit, N.J., who had a comprehensive exhibit; and Mr. John Mutch, who staged a fine exhibit of Cattleya Mossiae.

Sir Jeremiah Colman, Bart., Gatton Park, Surrey, sent a selection of species and hybrids from England. The plants travelled well, in full flower, and were a great attraction. Mention must also be made of the Mr. Wm. B. Berger's Cattleyas, which came from Denver, a distance of 2,000 miles.

The judges were Mr. Gurney Wilson (Chairman), Dr. Geo. T. Moore, Director of the Missouri Botanical Gardens, St. Louis, Mo., and Mr. Clement Moore, of Hackensack, New Jersey. The following acted as advisory judges: Prof. Chas. S. Sargent, Arnold Arboretum; Prof. Oakes Ames, Harvard University; Mr. Thomas Allen, Director of the Boston Fine Art Galleries; Mr. Louis Burk, of Philadelphia; Miss Marion R. Case, and Mr. H. W. Child.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Friday, May 22.—Committee present: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, A. Burns, A. Coningsby, J. Evans, W. Giles, Capt. W. Horridge, J. Howes,

A. **Keeling**, E. W. Thompson, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum The Chairman.—One of the finest of the white forms yet seen; it is a full, round flower with very broad fimbriated petals; the lip is large with a yellow throat; *O. eximium Red Admiral*, a flower with chocolate-red segments tipped with white, the large flat lip having a white base. From P. SMITH, Esq.

Odontoglossum crispum Duchess of York.—A white flower with broad fimbriated petals and large, flat lip. From Mrs. GRATRIX.

Brasso-Laelio-Cattleya Jupiter var. Majestica.—A flower with a large lip, coloured deep crimson at the base and with a yellow throat. From S. GRATRIX, Esq.

AWARDS OF MERIT.

Odontoglossum crispum May Blossom; O. crispum Princess; Odontioda Royal Purple; O. Aglaon Orchidhurst variety. From S. GRATRIX, Esq.

Odontoglossum Eros (Empress of India × Rossendale). From Mrs. GRATRIX.

Miltonia Hyeana Duke of York. From Mrs. BRUCE and Miss WRIGLEY.

GROUPS.

S. GRATRIX, Esq., West Point (gr. Mr. J. Howes) was awarded a Gold Medal for a group in variety.

Mrs. BRUCE and Miss WRIGLEY, Bury (gr. Mr. A. BURNS) staged a fine group for which a Silver Medal was awarded.

A HANMER, Esq., Buxton (gr. Mr. G. Giles), was awarded a Silver Medal for a group.

TRADE NOTES.

WE learn that the Birmingham Corporation Parks Committee has placed an order with the manufacturers of the Atco Motor Mower for twelve more machines. This is the outcome of a test which this Committee carried out during the whole of last season. The Liverpool Corporation have ordered four more machines, after having tested one purchased in 1922.

THE Minister of Agriculture and Fisheries has appointed a Committee to formulate, for the consideration of his department, a detailed scheme for individual tests of agricultural machinery as recommended by the Machinery Advisory Committee in their Report of April 7, 1923. The scheme is to include:—(*a*) the general regulations governing the admission of machines and implements for testing; (*b*) the special regulations governing particular groups or classes of machines and implements; (*c*) the forms of entry to be submitted to the Ministry; (*d*) the forms of certificates and reports to be issued by the Ministry; (*e*) the scale of fees to be charged, having regard to the necessity of making the scheme, so far as possible, self-supporting. The following have been appointed:— Mr. W. E. Dalby, F.R.S., Professor of Engineering in the University of London; Mr. Thompson Close of the Ministry of Agriculture and Fisheries; Mr. F. S. Courtney, M.I.C.E., M.I.M.E., Consulting Engineer to the Royal Agricultural Society of England; Mr. Henry Deck; Mr. Harry German; Mr. W. Harrison; Mr. B. J. Owen, M.Sc., M.Eng., Director of the Institute for Agricultural Engineering, Oxford; Mr. T. E. Stanton, C.B.E., D.Sc., F.R.S., of the National Physical Laboratory, Department of Scientific and Industrial Research. Professor Dalby has been appointed Chairman and Mr. P. Barker of the Ministry of Agriculture and Fisheries, Secretary of the Committee. The Committee is empowered to co-opt, for the purpose of enquiry into any particular class or classes of machine or implement, or any particular form of test, such person or persons whose knowledge may be of assistance.

MARKETS.

COVENT GARDEN, Tuesday, June 3, 1924.

Cut Flowers, etc. Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	15 0–18 0
—cuneatum, per doz. bun. ...	12 0–15 0
Anemone St. Bridget, per doz. bun.	4 0– 6 0
Asparagus, plumosus, per bun.	
long trails, 6's	4 0– 5 0
med. sprays ...	2 6– 3 6
short „ ...	1 0– 1 6
—Sprengeri, per bun.	
long sprays ...	3 0– 3 6
med. „ ...	2 0– 2 6
short „ ...	1 0– 1 3
Carnations per doz. blooms ...	2 0– 3 6
Croton leaves, var., doz bun....	2 0– 2 6
Fern, French, per doz. bun. ...	1 0– 1 3
Forget-me-not, per doz. bun. ...	4 0– 6 0
Gardenias, per box, 12's	8 0–10 0
Gladiolus, Peach Blossom, per doz. bun. ...	15 0–18 0
—Blushing Bride, per doz. bun....	15 0–18 0
—The Bride, per doz. bun. ...	15 0–18 0
Gypsophila elegans, per doz. bun. ...	12 0–15 0
Iceland Poppies, per doz. bun. ...	3 0– 4 0
Iris, blue, per doz. blooms	1 6– 2 6
—mauve, per doz. blooms	1 6– 2 0
—white, per doz. blooms	1 6– 2 6
—yellow per doz. blooms	1 6– 2 0
Ixia, various, per doz. bun. ...	3 0– 4 0

	s. d. s. d.
Roses, Richmond, per doz.	3 0– 4 0
—Mme. Butterfly, per doz. blooms	3 0– 4 0
—White, per doz.	8 0– 4 0
—Columbia, per doz.	4 0– 5 0
—Ophelia, per doz.	3 0– 4 0
—Sunburst, per doz.	3 0– 4 0
—Mme. Abel Chatenay	3 0– 4 0
Statice, mauve ...	5 0– 6 0
Stephanotis, per 72 pips	3 0– 3 6
Sweet Peas, per doz. bun. ..	9 0–15 0
Heather, white, per doz. bun. ...	9 0–12 0
Lilium longiflorum long, per doz. ...	4 6– 5 0
short „ „ ...	3 0– 4 0
—rubrum long, per doz. blooms ...	5 0– 6 0
—short „ „	3 6– 4 0
Lily of the Valley, per doz. bun. ...	24 0–36 0
Narcissus, double white, per doz. bun.	9 0–10 0
Nigella, per doz. bun. ...	12 0–15 0
Orchids, per doz.	
—Cattleyas ...	13 0–24 0
—Cypripediums, per doz. blooms	6 0– 8 0
Pelargonium, white, per doz. bunch,	10 0–12 0
Richardias (Arums)—per doz. blooms	4 0– 6 0
Smilax, per doz. trails	10 0–12 0
Stock, double white, per doz. bun.	6 0–12 0
Violas, per doz. bun.	4 0– 5 0

REMARKS.—Subjects which have increased most in this department during the past week are Cornflowers, Gladioli, double and single Pyrethrums, Poppies, Sweet Peas, Stocks, and Paeonies. Double-white Narcissus has been arriving in more limited quantities during the past week and prices have remained firm for these blooms; if wet weather continues the remainder of the crop will be spoiled, in which case more attention will be given to double-white Pyrethrums and white Pinks. The requirements of florists should be large during this week, especially for scarlet and white blooms for the Whitsuntide festivities and prices, no doubt, will be firmer towards the week-end for all subjects. Roses are again more plentiful, but the quality of the blooms are not equal to those of the first crop, the stems being shorter and the blooms generally smaller. Irises are somewhat erratic both in quality and price; the largest supplies are being received from Guernsey. The newest arrivals in this department are Statice sinuata (mauve) and S. Suworowi.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz. ...	10 0–18 0
—elegans	10 0–12 0
Aralia Sieboldii ...	9 0–10 0
Araucarias, per doz.	30 0–42 0
Asparagus plumosus	12 0–15 0
—Sprengeri ...	12 0–18 0
Aspidistra, green	48 0–72 0
Asplenium, per doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Cacti, per tray, —12's, 15's ...	5 0– 7 0
Crotons, per doz.	30 0–42 0
Cyrtomium ...	10 0–15 0
Hydrangeas, white, 48's, per doz. ...	24 0–30 0
—blue, 48's, per doz.	30 0–42 0

	s. d. s. d.
Hydrangeas pink, 48's, per doz. ...	24 0–36 0
Marguerites, white, 48's, per doz. ...	18 0–21 0
Mignonette, 48's, per doz. ...	18 0–21 0
Nephrolepis, in variety	12 0–18 0
—32's	24 0–36 0
Palms, Kentia ...	24 0–30 0
—60's	15 0–18 0
—Cocos	24 0–36 0
Pteris, in variety	12 0–21 0
—large 60's ...	5 0– 6 0
—small	4 0– 4 6
—72's, per tray of 15's	3 6– 4 0
Roses, Polyantha, 48's, per doz. ...	18 0–24 0
Stocks, white, 48's, per doz. ...	12 0–15 0
—coloured, 48's, per doz. ...	18 0–24 0

REMARKS.—Requirements have been exceptionally good during the past week. White, blue and pink Hydrangeas have sold freely. Spiraeas, Verbenas, rambler Roses, Marguerites, Ericas and a few white Crassulas have been the most attractive lines. Bedding plants are in good demand and large quantities have been sold during the past week.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples—	
—Australasian Jonathan	14 0–15 0
—Dunn's Seedling	14 0–15 0
—Cleopatra ...	15 0–16 0
—Cox's Orange Pippin	15 0–20 0
—Scarlet Pearmain	11 0–12 0
—Sturmer Pippin	14 0–15 0
Australian Grapes—	
—Malaga ...	25 0–28 0
—Wortley Hall	
—Almeria...	
Australian Pears, per case... ...	15 0–30 0
—Beurré Bosc ...	10 0–12 0
—Josephine ...	12 0–14 0
—Vicars	6 0– 7 0
New Zealand Pears—	
—Vicars	— 5 0
—Winter Nelis ...	— 10 0
Cherries, ½-sieve	6 0–14 0
—Boats	5 0– 8 6
—Boxes	1 6– 2 0
Bananas, singles	15 0–30 0
—doubles	15 0–30 0
Grapes—	
—Almeria, barrel	20 0–25 0
—English Black Hamburgh, per lb.	3 6– 5 0
—Muscats ...	6 0–12 0
—English Gros Colmar	5 0– 6 0
Apricots, per crate	6 0–10 0
English Figs, per doz.	6 0–18 0
Belgian Peaches, per doz. ...	12 0–18 0
English Peaches	12 0–36 0
Gooseberries, ½-sieve	7 0– 9 0
Guernsey Melons	3 6– 6 0
Grape Fruit ...	27 0–30 0
Lemons—	
—Naples	18 0–25 0
—Messina, box ...	12 6–16 0
—Case	8 0– 9 0
Oranges—	
—Spanish 300 ...	18 0–35 0
— — 360	15 0–25 0
— — 504	16 0–22 6
Pines, case ...	18 0–45 0
South African Pears	5 0– 6 0
—Pines, per case	27 0–40 0
Strawberries,	
—Special	9 0–10 0
forced, lb. ...	6 0– 8 6
—Second	3 0– 5 0

Vegetables: Average Wholesale Prices.

	s.d. s. d.
Asparagus—	
Cavaillon ...	1 0– 1 3
Cambridge ...	1 3– 2 0
Devon	10 0–16 0
Evesham, extra special ...	12 0–20 0
—special ...	6 0–10 0
—best	3 0– 5 0
Beans—	
Guernsey ...	1 6– 2 0
Worthing ...	1 6– 1 9
Madeira, basket	3 0– 4 0
Beets, cwt. ...	20 0–25 0
Cabbage, per doz.	2 0– 4 0
Carrots, new, per doz. bun. ...	9 0–10 0
— old, cwt. ...	8 0–10 0
Cauliflower, crates, 24's	6 0–12 0
Cucumber, 3 doz., 3½ doz., 4 doz....	18 0–22 0
Dutch Lettuce	1 6– 2 0
English Lettuce	1 0– 1 6
Forced Marrows, doz.	9 0–18 0
Green Artichokes, doz.	2 0– 3 0
Greens bag ...	5 0– 8 0
Mushrooms, lb. ...	1 6– 3 0
Mint, doz.... ...	3 0– 6 0
Onions, Valencian, cases ...	10 0–12 0
—Dutch	8 0– 9 0
—English, cwt. ...	11 0–13 0
—Egyptian ...	8 6– 9 0
Parsley, doz. bunches ...	6 0– 8 0
Parsnips, cwt. ...	8 0–10 0
Peas, forced ...	1 6– 3 0
Potatos, Dunbar, per ton ...	280 0–340 0
—King Edward,	240 0–300 0
—others ...	160 0–240 0
—Jersey, cwt. ...	— 30 0
—Spanish, cwt. ...	24 0–25 0
—Canary Island, case	14 0–18 0
Radishes—	
Round	1 6– 2 6
—Long	1 0– 1 6
Rhubarb—	
—Outdoor, per doz. ...	4 0– 5 0
Spinach, bushel	1 6– 2 0
Tomatos, Canary Island	30 0–35 0
—English, pink and white ...	10 0–11 0
— —blue	8 0– 9 0
— —white ...	8 0– 9 0
—Guernsey ...	9 0–10 0
Turnips, new, per doz. bun. ...	10 0–12 0
—old, cwt.... ...	6 0– 8 0

REMARKS—A very brisk demand has ruled throughout the week and every section has reported active conditions. Australian Apples have sold well, as have Pears and Grapes from the same source. Consignments of Apricots from Spain and Cherries from France have been heavy, but generally the produce has been in a variable condition. The demand for choice fruits, such as Peaches, Grapes, Figs, and Melons is very good and a firm inquiry is also ruling for forced vegetables such as Peas, Beans, and Marrows. Heavy supplies of green Gooseberries caused a fall in prices last week end, but at the time of writing their value has improved. The earliest pickings of outdoor Peas met with a good market. New Potatos are selling well although their prices are quoted lower. Mushrooms are plentiful, all grades being cheaper. Tomatos are in heavy supply but their values are fairly steady. Cucumbers are in good demand at firm rates. Green vegetables are moderately plentiful. Trade in old Potatos is quiet.

GLASGOW.

The various sections of the market have suffered this week from supplies that were in excess of the poor demand, and except for produce of the best quality, prices ruled low. Sales of cut flowers were disappointing as it was anticipated that the large orders which local florists have booked for wreaths in connection with the unveiling of the Cenotaph by Earl Haig would have stimulated purchases. Tulips are about over for the season and the bulk of the stuff was of poor quality, which only returned from 3d. to 6d. for twelve. On the other hand some fine grown blooms of Clara Butt yielded up to 1/6 for six. Rose values were firm, top quality blooms of Mme. A. Chatenay realising 5/- Mme. Butterfly and Ophelia 4/-, Mrs. H. Stevens and Richmond 3/6. Other quotations were as follow:— Anemones 1/6 to 3/- doz.; Iris 1/6 to 2/-; Carnations 2/- to 2/6; Scarlet 3/- to 3/6; Gladioli (6's) 1/4 to 1/8, and Sweet Peas 6d. per to 10d. twelve.

Pot plants in bloom moved out freely at firm prices, Hydrangeas being up to 42/-, Geraniums 24/- Spiraeas 27/- and Marguerites 12/- to 15/- per doz. On the other hand bedding plants were a glut and boxes of Scotch-grown, Asters, Violas, Carnations, Marigolds and Lobelia only brought from 1/- to 1/6, while Dahlias, Tomato and Celery plants could not find a purchaser. Geraniums were in low demand up to 12/- per doz.

A few interesting features have to be recorded in other departments. Evesham Asparagus rose to 7/9 per bundle, a first consignment of English Cherries brought 10/- per half sieve, and Ayrshire-grown Tomatos yielded 1/6 to 1/8 per lb. Gooseberries declined sharply to 3d. per lb. and Teneriffe Potatos were easier at 18/- per case. Supplies of English Cabbage were plentiful and values dropped to 4/6 per pot. As no English Cauliflowers came forward Dutch realised up to 5/- per doz. Australian Grapes are arriving in good condition and find a ready sale up to 32/- per case for black and 34/- for white sorts.

Obituary.

James Henry Hunter.—Deep and sincere regret was felt in Aberdeen University circles on Saturday the 24th ult., when the sad news became known of the death by drowning—it is surmised while bathing—of Mr. James H. Hunter, M.A., B.Sc., B.Sc. (Forestry), and B.Sc. (Agriculture), at Njala, Sierra Leone, on Wednesday, 21st ult. No details of the accident are yet to hand, but it appears Mr. Hunter perished with a companion—also a graduate in Agriculture of Aberdeen University—either in bathing or boating. Sir George Adam Smith, Principal of Aberdeen University paid a warm tribute to the deceased at the forenoon service in University Chapel on Sunday the 25th ult. He said they could not pass from their worship without some expression of the grief—shared alike by the administrative and teaching staffs of the University, and by her students—with which they had received the news of the sudden death of James Hunter; or without offering their tribute to Hunter's powers and to the services he rendered to Aberdeen University during the past five years. Hunter was a singularly loyal, lovable friend and comrade, and no student, it was safe to say, had left a deeper impression upon their academic life, or exercised a stronger influence among his fellows. James Hunter graduated Master of Arts so far back as 1907, but after some years of teaching, he returned in 1912 to the University to study science, and then, having served in the army from the outbreak of the war until after the end of it, he resumed his studies in 1919, taking three degrees in science, and acting as well for a period as a member of the staff of the botanical department. In December last he sailed for Sierra Leone to take up an important appointment as lecturer under the Sierra Leone Government at Njala Agricultural College. Now he has been suddenly cut off in the prime of life and the full promise of a useful and honourable career, but not before he had deservedly earned the most enviable distinction a man could—the acknowledged leadership of a generation of his fellow students. I know, too, added Sir George, how James Hunter's personality impressed our Lord Rector, the Duke of Richmond and Gordon, and other public men to whom I introduced him as worthy of a post in the National or the Imperial service; Mr. Hunter, who was 39 years of age, was a widower, and leaves one daughter. Mr. A. B. Hunter, retired schoolmaster, Rothes, father of the deceased, received intimation of the tragedy from Mr. William Adamson, Secretary of State for Scotland.

Ernest A. Merryweather.—It is with deep regret we record the death of Mr. Ernest A. Merryweather of Messrs. Merryweather and Sons, Ltd., Southwell, Notts., who passed away on the 24th ult., after a long and painful illness. Mr. Merryweather was greatly liked by all the members of the horticultural trade and it was only during his illness that he was prevented from taking his usual prominent position in trade affairs and at exhibitions. Had it not been for his poor health he would have most likely been president of the Horticultural Trades' Association during 1922. Nevertheless, he continued to act as a member of the Council of that body so long as he was able to come to London. He was director and secretary of Messrs. H. Merryweather and Sons, Ltd., and had been engaged in the nursery business since 1890. In addition to his association with the Horticultural Trades' Association he was a member of the Chamber of Horticulture, held a seat on the R.H.S. Fruit and Vegetable Committee and was for some time chairman of Southwell Parish Council. This death is a loss to the horticultural trade and to gardening generally.

ANSWERS TO CORRESPONDENTS.

Lychee or Litchi: *Old Kewite.* The fruit sent for identification is commonly known as the Lychee or Litchi and is a species of Nephelium (N. Litchi), cultivated in China and elsewhere for its edible fruit. The fruits are exported to this country and are usually obtainable from high-class fruit shops. The Litchi is a small medium-sized tree, and the fruits are borne in clusters and when fresh are like large Strawberries in appearance. In shape they are oval to ovate, about 1½-inch in diameter and of a deep rose colour when fully ripe, changing to dull brown as the shell ages The outer covering is hard and brittle, with a rough surface and the seed is as large as a good-sized Castor-oil-bean; surrounding the seed is the edible part (the aril) which is juicy and of firm texture. Fresh fruits have a slightly acid flavour and the Lychee has been claimed to be "as delicious, perhaps, as any fruit in existence." The fruit is dried just as it comes from the tree and in this state it is exported; the flower bears little resemblance to that of the fresh fruit and is very like that of Raisins. The Chinese cultivate many named varieties and there are at least eight known in India.

Name of Fruit: *W. C.* Apple, Shepherd's Fame.

Names of Plants: *N. R. N.* We do not undertake the naming of florists' flowers. *C. R., Devon.* 1, Fritillaria persica; 2, Tritonia crocosmaeflora; 3, Ajuga reptans variegata; 4, Epimedium pinnatum; 5, Pulmonaria saccharata. *M. O. M.* 1 and 2, Dracaena terminalis; 3, Cotyledon Pachyphytum; 4, Nephrolepis exaltata; 5, Nerium Oleander; 6, Choisya ternata; 7, Daphne odora (indica); 8, Petrea volubilis.

Pelargonium Cuttings Diseased: *N. Y.* A full account of this disease, caused by the fungus Pythium de Baryanum, appeared in our issue of January 12th, 1924, p. 25.

Polyanthuses Rotting: *H. P. K.* The specimens are affected by the fungus Thielavia basicola, a well-known root parasite which attacks a number of plants of widely different families. The mycelium of the fungus invades the plant by way of the roots and the crown or collar are subsequently invaded. The effect on the plant is a slow wilting and yellowing of the outermost leaves at first, and then the innermost leaves wilt and finally the top of the plant is separated from the base. The diseased portions appear black as if they had been charred. It is a very difficult disease to control and infected plants should be carefully removed and burned. The bed should then be dressed with sulphate of potash at the rate of about one ounce to the square yard. In the autumn the plants should be given new quarters; before planting they should be carefully treated by removing all diseased portions and by dipping them in a solution of "Cheshunt Compound." This fungicide is prepared by mixing powdered copper sulphate and freshly ground ammonium carbonate in the proportion of two parts by weight of the former to eleven parts by weight of the latter. The mixture should be stored dry for twenty-four hours in a tightly corked glass or stone jar. The specific is prepared by dissolving one ounce of the dry mixture in a little hot water and adding two gallons of water.

To Destroy Ants: *F. H.* The following has been suggested as a suitable method for destroying ants: 115 grams of arsenate of soda, 1 lb. of sugar, 1 tablespoonful of honey, and 1 quart of water. The arsenate of soda and the sugar should be boiled with the water till they are dissolved. The honey is then added and when cool the liquid is poured into shallow dishes in which are placed pieces of bread or sponge. This mixture is poisonous and therefore must not be placed within the reach of domestic animals or children.

Tomatos Damping Off: *J. W.* The Tomatos are affected with the soil fungus Phytophora crypthtogea and the disease spreads rapidly from seedling to seedling. The main sources of infection are the soil and water supply, but the infection may also originate from the seed boxes and pots, as the organism may be carried over from one season to the next. It is important at the time of seed-sowing to commence with sterilised soil, using either steam or treating it with a solution made by dissolving one gallon of commercial 40 per cent. pure formaldehyde in forty-nine gallons of water. The pots and seed boxes should also be similarly treated. In spite of these precautions chance infection sometimes occurs and should the disease appear the plants should be watered with a solution of "Cheshunt Compound." This fungicide is made by mixing two parts by weight of powdered copper sulphate with eleven parts of freshly ground ammonium carbonate. The mixture should be stored for twenty-four hours in a tightly corked glass or earthenware jar before use. The solution is prepared by dissolving one ounce of the mixture in two gallons of water. When potting the seedlings water them first with the solution while still in the seed-boxes to ensure that the roots are thoroughly watered, and after transplanting into pots the solution should again be applied. When the plants are given their permanent positions in the greenhouse the solution should be applied to each of the holes prepared for receiving the plants. About one pint of the solution will be required. If it is necessary to remove a diseased plant the hole should be watered with a pint of solution. a healthy specimen replanted, and the soil again watered with the specific.

Vines Failing: *Puzzled.* There is nothing wrong with the soil or top-dressing of your vine border, and the paraffin emulsion recommended in the Royal Horticultural Society's Diary is quite safe provided it is kept well stirred while using. If this was not done damage to the vines would result, for the paraffin always rises to the surface and if this mixture was passed from one vessel to another without being well stirred, a much larger quantity of paraffin would be used on some vines than on others. The only safe course to pursue when using paraffin is to keep the mixture well churned with the syringe before and also when using it. It is possible your vines may break from the base, in which case the shoots should be trained in carefully, and thus avoid the loss of the vines altogether.

Violets: *C. W.* There was no disease present on the specimens and the damage has no doubt been caused by the dull, cold weather in early spring. The plants should be divided now and the best shoots selected for growing. Plant in good well-trenched soil and mulch the plants with decayed leaf soil as soon as they are established. An article on "The Sweet Violet" appeared in our issue of the 26th ult., p. 242, and contained useful information on the cultivation of this subject. *C. T.* The specimens are affected with the fungus Phyllosticta violae and no doubt it is due to the presence of this disease on the flower stems which causes the blooms to wither quickly when placed in water. Spray the plants with a solution made by dissolving half-an-ounce of potassium sulphide in one gallon of water.

THE
Gardeners' Chronicle

No. 1955—SATURDAY, JUNE 14, 1924.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 60·2.

Actual Temperature:—

Gardeners' Chronicle Office, 5, Tavistock Street Covent Garden, London, Wednesday, June 11, 10 a.m.: Bar 29·65°; temp. 59°. Weather, Showery.

Plant Breeding at Reading.

A DISTINGUISHED company of scientists, horticulturists and agriculturists met at Reading recently to view the extensive trials and experiments in plant-breeding and research conducted by Messrs. Sutton and Sons. The party, numbering about forty, was welcomed by Mr. Martin Sutton, and among those present were Sir Daniel Hall, Sir Herbert Mathews, Prof. W. Bateson, Prof. J. H. Gilchrist, and Messrs. W. G. Lobjoit, H. V. Taylor, C. Bryner Jones and W. H. Parker. The morning was spent in inspecting the plant-breeding garden, wherein are taken the initial steps in raising new types of garden vegetables, root crops, grasses and Clovers, flowers, agricultural roots, etc. Limits of space do not admit a record in any great detail of the work being conducted at Reading; suffice it to say that no firm has done more than Messrs. Sutton and Sons in the introduction and improvement of garden and farm crops. The garden Pea, for instance, may be cited as an example of the interest Messrs. Sutton and Sons have shown and are still displaying in one crop alone. In the garden was to be seen a collection of wild Peas from Abyssinia, Syria, etc., and the party was reminded of the work carried out by Mr. Arthur Sutton in crossing the wild Pea from Palestine with commercial types. From these crosses many distinct forms were raised, but as they did not prove of any commercial value the experiments were discontinued, although the seeds still form an interesting feature of the Museum. The original Palestine Pea (probably Pisum humile) is, however, still grown in the grounds; this Pea has serrate leaves, mauve flowers, and bears pods about one-and-a-half inch long. In contrast with this wildling is the enormous podded variety, "V.C.," which was raised at Reading and was the result of years of patient work, for the improvement of this vegetable has been carried on by the firm for nearly half-a-century. So long ago as 1882 they procured the whole stock of American Wonder and in 1888 this variety was crossed with Early Paragon. Later, in 1898, Harbinger was crossed with Gradus, and from this cross alone six perfectly distinct and improved new varieties were obtained and distributed. In connection with the breeding of Peas the visitors were shown a large series of Tare-leaved or rabbit-eared rogues, which appear in practically all the highly bred garden Peas of to-day. Much research has already been carried out with a view to finding out why these rogues should always make their appearance. It is strange that no matter how carefully a stock is rogued, a very small percentage will turn up year after year; what, however, is more peculiar is that the Tare-leaved rogue will always follow the parent form in habit, *i.e.*, if the variety is tall the Tare-rogue will be tall; if dwarf, the Tare-rogue is dwarf. It is only by very careful and expert rogueing that a stock may be kept reasonably free. Seedling Peas were seen which produce three and four flowers on the inflorescence, but this character has not yet been fixed. Attention was also directed to a Pea which produces no tendrils to another which has golden strawed haulm, and yet another whose seeds stick together by means of muscilage and so form a beaded string. Adjoining these were specimens of the first generation of no fewer than eighty-three crosses made between various commercial Peas, and selections made in 1923. Increase in cropping power, drought and mildew resistance, and early maturity, are a few of the objects for which these crosses are carried out. In another part of the garden an extensive trial was in progress of nearly all the principal types in cultivation, together with many seedlings which have been raised in the plant-breeding garden and which are now undergoing comparative tests with existing strains and varieties. Other vegetables with which great improvement is being made include the Dwarf Bean, and there was an interesting series of plants resulting from crosses between the Runner and the Dwarf types (Phaseolus multiflorus and P. vulgaris nana), the object in view being to obtain a Runner Bean which does not climb! The results of crosses and selections also in the Brassica family were seen; these showed that efforts are being made to improve the weather-resistant powers of modern varieties of Broccoli. In Cornwall the market growers have to depend upon local strains which possess tough foliage and thereby resist the high winds prevalent in the West. These varieties, however, lack the whiteness and compactness of the heads of the more modern varieties, which, unfortunately, rapidly lose their leaves when grown in the West; crosses have been made between the two types in the hope that the Cornish growers may soon have better marketable varieties than the limited number they now possess. Experiments are being continued with Tomatos, Onions, Lettuces, Turnips, and other vegetables, and of special interest was a Broad Bean cross between the tall-growing Exhibition Long Pod and the semi-tall Beck's Green Gem. As a result a variety has been obtained which grows but a few inches in height, has medium-sized beans and is of special value for cultivation in frames. The morning session concluded with an all too brief inspection of the manurial experiments and Sweet Pea trials—the latter containing about six hundred stocks, including practically all known types and varieties.

After luncheon the visitors motored to the trial grounds at Slough where the Clover and Grass trials were inspected with enthusiatic interest. A batch of four-hundred-and-ninety plants of wild Red Clover showing enormous variation in leaf, habit of growth, time of flowering, etc., was inspected, and attention drawn to half-an-acre of yellow-seeded Red Clover, which was sown in 1922 and is still in vigorous growth in spite of the fact that a seed crop was taken from it in the autumn of 1923. The ordinary Red Clover rarely survives two seasons. Comparative trials of various strains of Grasses and Clovers were in progress, and an item of unusual interest was a plot of the Strawberry Clover (Trifolium fragiferum) which has proved of great value in the New Zealand littoral, owing to its power to withstand periodical inundation. Experiments are now being made by Messrs. Sutton and Sons under similar conditions in the neighbourhood of Poole Harbour. An acre of a maritime form of Festuca arenaria proved that this grass possesses quite exceptional value for the formation of fine turf for golf greens, bowling greens, etc. Earlier in the day a lawn formed of this grass was seen, the seeds of which were sown some four or five years ago in drills made two feet apart. The grass has now become so intermatted that there is no sign of the position of the original rows and a perfect sward of turf has resulted of fine texture and foundation. Sir Daniel Hall and Prof. W. Bateson expressed the thanks of the party for the opportunity of inspecting the extensive trials at Reading, and, together with Prof. Gilchrist, referred in eulogistic terms to the continuous and thorough experimental work carried out by Messrs. Sutton and Sons. The party was generously entertained to lunch and tea, and on the suggestion of Mr. Bateson a telegram conveying the good wishes of all present was sent to Mr. Arthur Sutton, who, owing to indisposition, no longer takes an active part in the firm's plant-breeding experiments.

Flowers in Season.—Messrs. Fisher, Son and Sibray, Ltd., have sent trusses of Rhododendrons, N. N. Sherwood and Countess of Donoughmore; the inflorescences were exceptionally fine. Messrs. Fisher, Son and Sibray, Ltd., inform us that both sorts are exceptionally good this year and that the variety N. N. Sherwood never fails to produce a good display, even small plants flowering freely. They also state that the habit and foliage of both sorts are good.

Plant Breeders' Conference at Poona.—By the courtesy of Dr. W. Burns, Economic Botanist and Principal of the Agricultural College at Poona, India, we learn that the first Plant Breeders' Conference held in the Bombay presidency was a great success and proved invaluable to the forty specialists who gathered together at the end of April. The plant-breeding department furnished fifteen members, five others were workers engaged under the Sassoon David Trust and Indian Cotton Committee, while the staffs of the Economic Botanist and the Horticulturist completed the attendance. Some of the experts came from so far north as Sind, and so far south as Dharwar.

The conference took the form of discussions, with demonstrations carried out in the College laboratories. Dr. H. H. Mann, Director of Agriculture, opened the proceedings, and Dr. Burns presided. The latter advised the mathematical treatment of statistics during plant breeding experiments and pointed out the need for numerical standards for improved races of plants. The conference decided to recommend that the standard formulae be adopted by the Department of Agriculture. This recommendation received emphasis from Mr. Nazareth's experiments, which were reduced to mathematical formulae for the guidance of research workers. During the second day's proceedings the necessity of check plots in plant breeding was pointed out, and it was stated that plant-breeding work should never be commenced on land of unknown quality; in connection with varietal forms of agricultural crops this is naturally a matter of importance, especially where high productiveness is the aim. Soil fertility, pure lines, test plots and check plots were all discussed with a view to securing thorough and reliable tests of new plant varieties. The standardising of Cotton measurements was another important matter discussed; Mr. Patel found after experiments made over four years that the length of the Cotton hairs in the centre of the boll was the only true standard of the general length of the hairs, and the conference agreed that the practice of using the middle hairs as a standard should be continued. The third day the conference was occupied in reports from workers engaged in breeding new varieties of Nanchani, Tobacco, Bajri, Jowar and Safflower. Later, the desirability of uniformity of method and expression was put forward and the conference agreed that all members of the staff engaged on plant breeding work should use the metric system for linear, superficial, cubical and gravitational measurements except when dealing with large units. The conference proved stimulating and encouraging to all present. Much knowledge was pooled and standardising of method agreed upon. Indeed the conference was such a success that it is likely to become an annual fixture and to be held in Surat in 1925.

Weather Forecasts.—A weather forecast for the night and following day may be obtained from the Meteorological Office, Air Ministry, without charge, by ringing up any telephone exchange in the evening after five o'clock. This service should be of considerable value to those who have a telephone in their homes or have ready access to a public call office. To meet the needs of those who are not in connection with the telephone system, daily forecasts are despatched by telegram to subscribers. These forecasts are normally issued in the afternoon to cover the weather of the following day, but forecasts for the same day can be issued in the early morning if desired. For these telegrams a fee of 6d. per week plus telegraphic costs (calculated on an average of 1s. 3d. per message) is charged. Another type of forecast which is sent by telegram gives notification of the setting in of spells of fair, settled weather and of their break up. These telegrams are not issued on regular dates, but as called for by the conditions. The charge made is 6d. for each forecast in addition to the cost of telegraphy. Those desirous of obtaining forecasts of either type (2) or (3) above should communicate with the Director of the Meteorological Office, Air Ministry, Kingsway, London, W.C. 2, enclosing a postal order or a cheque to cover the cost of the messages required; in the case of type (3) a deposit of not less than 7s. 6d. should be sent, any unexpended balance being returned on the conclusion of the service. The shortest address which may be used for the telegrams should be stated.

Mr. A. Dawkins.—Tall, unassuming and always cheery, Mr. A. Dawkins possesses a very wide knowledge of seeds and all that appertains to the seed trade. For many years he has made a special feature of florists' flowers and their many varieties and has taken the opportunity to visit practically all the leading trials of the more popular kinds that find favour with the general public. He has consistently interested himself in the work of the National Sweet Pea Society and few are more competent than he to pass an opinion upon the new forms which are brought before the public year by year. His wide knowledge has been obtained at various establishments and it is of interest to observe that he was originally intended for a chemist. His first serious adventure in horticulture was with Messrs. Cross and Stier, of Salisbury, where he had the advantage of being in the employ of a very capable business man and first class grower. From Salisbury he came to London and entered service with Messrs. James Carter and Co., in their wholesale department, then at Holborn. Two years later he passed on to Messrs. J. Peed and Son's establishment at West Norwood, where he obtained considerable insight into the general nursery trade. His next position was with Messrs. Lee of Hammersmith, with whom he stayed for some time, and then entered the employ of Messrs. James Veitch and Sons, of Chelsea, where he became manager of the seed department and remained for eighteen years until, on the retirement of Sir Harry Veitch, the Chelsea business was given up. Mr. Dawkins then commenced business on his own account at King's Road, Chelsea, where he specialises in seeds and bulbs and sundries, and has built up an excellent reputation and an extensive business. Mr. Dawkins is a staunch advocate of membership of the United Horticultural Benefit and Provident Society and never misses an opportunity of bringing the usefulness of this Institution before gardeners and members of the seed and nursery trade. He also takes a keen interest in the Royal Gardeners' Orphan Fund and is a member of the Committee of that body. Mr. Dawkins is a student of natural history, widely read, and fortunate in the possession of a charming personality

MR. ALFRED DAWKINS.

Moray Field Club.—The members of this club recently had a delightful and instructive botanical excursion to Lossiemouth, Morayshire. On arriving at the little town, the birthplace of our present Prime Minister, the party proceeded along the foot of the rocks southwards to the quarry. All along the rocks Wallflowers were found growing in clefts, as they have done in this district for over a hundred years. Owing to the boisterous weather prevailing this season, few spring flowers were to be seen, the greatest number found being very common sorts. When the quarry was reached the company came upon three Vetches—Vicia sativa, V. angustifolia, and V. lathyroides. Here also were observed, though not yet in flower, Astragalus glycyphyllos, one of the rarest plants in Morayshire, and first seen in the county by Dr. Gordon in 1839. The Rev. G. Wilson also recorded it at Cothall, on the banks of the Findhorn. At Lesmurdie, too, near Elgin, it has been observed. Alyssum, undoubtedly an escape from the gardens above, was also found at the foot of the rocks.

Orchids at the Chelsea Show.—At the meeting of the R.H.S. Orchid Committee on Wednesday last, Mr. Fred K. Sander called the attention of the Chairman to the very bad arrangement of the Orchid tent at the Chelsea Show and asked him to communicate with the Council in order to prevent, if possible, similar inconvenience in future. The allegations were that most of the staging was too close together, rendering the work of arrangement and the inspection by the visitors very difficult. It was stated that the grass spaces between the lines of staging were too narrow and the surfaces very irregular, many deep holes rendering it dangerous to walk over them. Mr. Henry H. Smith of Messrs. Charlesworth and Co., and Mr. Stuart H. Low of Messrs. Low and Co., spoke to the same effect, and all agreed that the space could have been arranged to better advantage. Sir Jeremiah Colman, the chairman, said that as an exhibitor he had some experience in the matter in question and he would make a representation to the Council on the subject.

Importation of Plants into Canada by Parcel Post.—We learn from the Ministry of Agriculture that the Canadian Authorities have withdrawn the prohibition placed on the importation of nursery stock through the mails. Small parcels of plants, bulbs, etc., may now be sent to Canada by means of parcel post, each parcel to be accompanied by the usual official certificate of health issued in the country of origin. The consignment will also be examined at the port of entry (Vancouver or Montreal). The Canadian importer must first obtain an import permit in the usual manner, and indicate that he desires to import by means of the parcel post. Special labels will be furnished to the applicant, who should send them to the exporter to be affixed to the packages, together with the copy certificate of health. Exporters are recommended to place inside the package an additional label indicating the address of the consignee. Small consignments of plants to be sent to Canada by parcel post may be examined at the Ministry's Office, 10, Whitehall Place. A fee of 1s., payable in advance, is charged and the following procedure must be followed:—The plants must be sent to the office of the Ministry in a box, which can easily be opened, and packed in such a way that they can be taken out, thoroughly examined and then repacked by the inspector. The box must be labelled "Plants (bulbs or seeds) for export." The necessary labels, prepaid and directed to the Canadian address, must be enclosed, together with the Customs declaration required by the postal regulations. After examination the parcel will be posted, and a receipt of posting obtained and sent to the consignor. If it be desired that the parcel shall be insured, the requisite sum must be forwarded. Parcels should, where possible, reach the Ministry at least a week before the departure of the mail.

Honour for Mr. Gurney Wilson.—At the meeting of the Royal Horticultural Society's Orchid Committee held at the Chelsea Show, the Chairman, Sir Jeremiah Colman, Bt., congratulated the Hon. Secretary, Mr. Gurney Wilson, F.L.S., on having received the Large Gold Medal of the American Orchid Society, presented for eminent services in Orchidology. Mr. Gurney Wilson was entrusted with the conveyance to America of the Gold Medal of the Royal Horticultural Society and the Silver Cup presented by the British Orchid trade for competition at the show of the American Orchid Society held at Boston; we understand Mr. Gurney Wilson visited the chief American Orchid collections during his recent visit to the United States.

Horticulture as a Career for Women.—At a meeting held during May at Swanley Horticultural College, to discuss the openings for women in horticulture, the speakers included Professor V. H. Blackman, F.R.S., Imperial College of Science and Technology; Mr. H. V. Taylor, Deputy Controller of Horticulture, Ministry of Agriculture; Dr. Barratt, Principal of Swanley Horticultural College; Miss Ekins, Principal of Studley Horticultural College; Mr. W. Hales, Curator Physic Gardens, Chelsea; Miss Lines, Royal Botanic Gardens, Regent's Park; and Miss Pratt, H.M.I., Ministry of Agriculture. Dr. Barratt, in introducing Prof. Blackman and Mr. Taylor, said that Swanley College was a particularly suitable place for this discussion, as being the first horticultural college for women, founded 35 years ago. Prof. Blackman stated that four lines of professional work were open to women with horticultural experience, namely, school teaching, purely academic work, research at agricultural or horticultural stations, and as economic botanists under the Colonial Office. Prof. Blackman quoted the case of the first woman mycologist appointed by this office—an old Swanley student—who has been successful in her research into the cause of Clove disease in Zanzibar. Mr. Taylor said that women could take their part in the laying out of parks, instructing allotment holders under various County authorities, and managing large private gardens on scientific lines. Instruction in modern methods of jam-making and fruit-bottling is also in demand. Mr. Taylor said that caution is necessary on the commercial side, but women should find opportunities in nursery work, in fruit growing, in modern marketing methods, and in the enormous flower industry. Dr. Barratt said that a more intellectual type of woman student was now taking up gardening, and at present the number of posts available exceeds the supply of trained students.

Appointments for the Ensuing Week.—Tuesday, June 17.—Winchester Horticultural Society's lecture. Wednesday, June 18.—York Flower Show and Gala at Fulford Road. Friday, June 20.—Eastbourne Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Tulips.* Offsets, and bulbs grown on the side beds, will now be ready to take up. Put them in their respective places in the cabinet or boxes. Thin paper is proper to fold them in, if the amateur has not the conveniences before mentioned; do not divest them now of either roots or loose skins, but allow them gradually to dry in the shade. Breeder Tulips may be allowed to lie exposed to the action of sun, air, and wind in some sheltered and convenient place; this exposure has the singular effect of speedily causing the whole to become rectified, or, technically speaking, to break into their proper or variegated character. One-year seedlings, if the foliage has turned yellow, may be placed on a shelf, out of the way of mice, till the season comes for again starting them. *Gard Chron., June 16, 1849.*

Publications Received.—*Rice.* By Edwin Bingham Copeland. Macmillan and Co., Ltd., St. Martin's Street, W.C. Price 20s. net.

FLORISTS' FLOWERS.

DAHLIA COLTNESS GEM.

A correspondent in the *Irvine Times* for May 23 gives some interesting particulars of the origin and history of Dahlia Coltness Gem. He states that it was raised, or made its first appearance in Coltness Gardens, but the exact date is not known. It is stated that it was grown by a nurseryman at Hamilton twenty years ago, and there is evidence of its existence at a later date in Aberdeen and other parts of the country.

The first record of its being offered for sale was in 1918, when Mr. D. G. Purdie of Glasgow offered it under the name of Waterloo. Mr. Purdie, however, found that the same variety was being grown by Mr. Whitton in the city parks of Glasgow as Coltness Gem, and Mr. Purdie substituted the latter name, under which he exhibited blooms at the Royal Horticultural Society's exhibition at Chelsea, but it did not receive recognition from the Floral Committee.

It was shown again in 1922, and was commended for inclusion in the Dahlia trials at Wisley, and in the following year it received an Award of Merit. Long before it received any award there was a big demand for the variety and Mr. Purdie executed large orders for the plant and soon disposed of his available stocks. Its fame spread abroad, and it is now being grown in South Africa, Australia, and New Zealand. In countries where the importation of plants is prohibited growers are purchasing seeds, which are said to yield a varying percentage of the true plant.

SWEET WILLIAMS.

Twelve months ago I took charge of the Manor House Gardens, Hurworth-on-Tees, Darlington. Finding a few choice old roots of a beautiful variety of this old-fashioned garden flower, I decided to let them grow on until the autumn, when I took about fifty fine, strong growths and made them into cuttings. I simply dibbled the cuttings in a corner where I desired to see a patch growing. The result just now is the promise of a very fine corner patch, with plants having as many as seven and nine strong flowering heads each. It would be interesting to know if other growers have tried the same plan. Only six cuttings failed. *V. H. Lucas.*

ORCHID NOTES AND GLEANINGS.

ERIA ORNATA.

In Sir Jeremiah Colman's fine group at the Chelsea show a large number of rare species of Orchids, often called "botanical," were displayed and attracted as much attention from many of the visitors as did the showier type. Among the most admired was the fine specimen of the true Javan Eria ornata (Fig. 153) with its stout pseudo-bulbs ornamental, fleshy leaves, and upright spikes of orange-red bracts and small flowers, with a densely woolly exterior. It is often confounded with Eria armeniaca and is figured in the *Botanical Register*, 1841, t. 42, under that name, the form there shown being inferior to that in Sir Jeremiah Colman's collection. All the species of the group, including E. flava, E. lanata and E. pannea, with many others of this interesting genus, are grown at Gatton where they rarely allow a pretty species to fail.

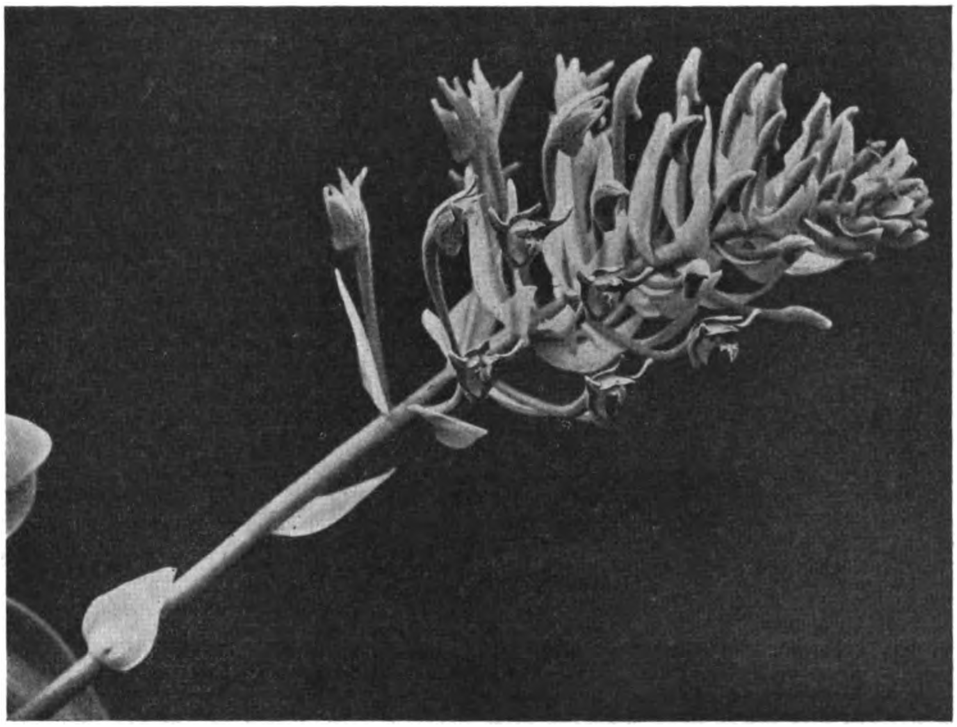

FIG. 153.—ERIA ORNATA.

ODONTIODA FLANDERS.

A fine flower of the new Odontioda Flanders sent by R. Gerrish, Esq., Milford Manor, Salisbury (gr. Mr. W. Sorrell) shows that it is one of the best of the dark coloured section. It has broad and nearly equal sepals and petals of the darkest ruby-crimson colour, with some small white spots at the margin and on the lip. The column also is crimson with a white tip and the reverse side of the flower is coloured like the face, but with broad, feathered, whitish lines on each side of the midribs. It was obtained by crossing Odontoglossum Dusky Monarch and Odontioda Red Cross, both of which are richly-coloured hybrids

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Cypripedium.—Many plants of such warm growing Cypripediums as C. Rothchildianum, C. grande, C. Stonei and C. laevigatum have recently been in bloom, and so soon as they have recovered from the effects of flowering, and new growths push forth, the necessary re-potting should be attended to, for these plants should not be allowed to remain in a pot-bound condition. The pots should be well drained; a suitable compost consists of equal parts good fibrous loam, with the earthy particles shaken out, Osmunda fibre cut into rather short portions, and Sphagnum moss, mixed with sufficient crushed crocks to render the whole porous. For a few weeks after root disturbance keep the surface of the soil just moist, but when the plants have become re-established they should be watered freely. During their growing season these Orchids are benefited by spraying them lightly overhead with clear, tepid rain water, when the weather is warm and bright, but care should be taken that water does not lodge in the axils of the leaves.

Dwarf Cypripediums.—The dwarf-growing C. bellatulum, C. niveum, C. Godefroyae and the many hybrids of this section will also need re-potting if the compost is decomposed; but well-rooted specimens that are growing in sound compost should not be disturbed. Ordinary flower pots are the most suitable receptacles and are preferable to pans, as when in good health these plants are rather deep-rooted subjects. A compost similar to that mentioned above is suitable, with the addition of a few small pieces of mortar. The plants should be potted rather firmly and placed in a position well up to the roof-glass in a house having an intermediate temperature.

Stanhopea.—This Orchid is best grown in shallow Teak-wood baskets, and suspended from the roof-rafters in a moist, shady position in an intermediate temperature. The pendulous inflorescences push downwards through the bottom and sides of the receptacles. For that reason when replacing them in the baskets no crocks should be employed as drainage, but coarse pieces of Osmunda-fibre may be used for the purpose. The rooting-medium may be composed of equal parts Osmunda-fibre and Sphagnum-moss. Plants that require increased rooting-space should be placed in receptacles that will accommodate them for at least two seasons, as these Orchids dislike frequent root disturbance. Those having sufficient rooting-space and good compost should be merely top-dressed afresh, removing a portion of the old soil to permit of this being done. Water the roots sparingly during the plants' early stages of growth. Spray the foliage on frequent occasions, and especially the under-sides of the leaves, to prevent attacks of red spider

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Gladioli.—Gladioli, especially those of the large-flowering section are liable to injury by high winds, and stakes should be put to them in good time. If grown in rows for furnishing cut blooms a stake at each end of the row with others at intervals and the whole connected by lengths of strong soft material may suffice, but in the decorative border it will be necessary to give each plant a separate support.

Surplus Bedding Stock.—Now that the planting of the beds and borders is finished the remaining stocks of plants should be looked over. It is a good plan to pot on a few plants which may be required to take the place of any which have failed or to furnish beds now occupied with plants which have a short season of flowering. Where large plants of Fuchsias or standards of Heliotrope are in demand these should be grown on in pots during the summer to make specimens for next year. A few plants of Heliotrope, Lantana, Verbena, etc., which do not root freely in the autumn, should also be grown in pots to provide stock plants for next year's supplies of cuttings.

General Remarks.—Newly planted beds need constant watching. All failures should be made good at once and the tying and staking of every thing requiring support should receive attention. Where an early display of flowers is not required or when plants are inclined to be weak all buds may be pinched out to assist the plant in building up strong growths for later effect. In the shrubbery the pruning of shrubs should receive attention as they pass out of flower. Old plants of Lilacs, Guelder Roses and many other shrubs, which have become leggy through neglect in pruning, may be cut hard back into shape immediately after flowering instead of waiting until the winter, and thus save a year's growth. Azaleas and Rhododendrons should have their seed vessels removed as they pass out of flower, and those not already mulched should now receive a liberal application of suitable material. Lawn mowings during the past month have been exceptionally heavy, and where these are being treated as advised in a previous calendar, plentiful supplies of material for this purpose are becoming available.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Early Vinery.—Vines started into growth during the first week of January will, by this date, have finished colouring their berries, and the temperature of the house may be gradually lowered. Only sufficient fire heat will be necessary to prevent the atmosphere of the house from becoming stagnant, and during those periods when the weather is sunless and wet. As soon as the Grapes are ripe plenty of fresh air should be admitted to the vinery both day and night. Damp the floors only during hot, bright weather, and sufficiently early to allow the atmosphere to become dry before nightfall. The bunches should be examined frequently for faulty berries, which should be removed. It is during the ripening period, when the atmosphere is kept warm and dry, that red spider spreads, but the pest may be kept in check by sponging the leaves with a mixture of soft soap and sulphur, or by using the old method of coating the hot water pipes with sulphur. As soon as the crop is removed the vines may be syringed vigorously with soft rain water.

Late Grapes.—The final thinning of all late Grapes should be completed by this date, always bearing in mind when carrying out this work that different varieties vary considerably in the length of the footstalks. Berries that are produced on short footstalks are generally round and these should be thinned more freely than the others to allow of sufficient space for the Grapes to develop. If those with long footstalks are thinned too freely the bunches will present a loose appearance. At the time the berries are swelling the roots should be fed with liquid manure or an approved vine manure. Close the house early in the day to conserve the sun's heat, with plenty of atmospheric moisture. A little artificial warmth will be beneficial during sunless weather, especially in vineries in low surroundings, otherwise, with excessive moisture at closing time, mildew may be troublesome.

Cherries.—Cherry trees growing in cold orchard houses with fruits ripe or approaching ripeness should be given less moisture both at the roots and in the atmosphere, or the Cherries will be liable to crack. At the same time it is not advisable to withhold water to such an extent as to cause the fruits to shrivel. To be certain of obtaining the maximum crop the ventilators should be covered with a fine mesh netting to make the fruits secure from birds.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Hoeing.—Continue to hoe the ground between fruit bushes whenever it is dry enough for the operation. Do the same also in the Strawberry beds up to the time when they are ready for the straw to be laid down the rows.

Plums.—The prospects for a good Plum crop are not favourable; the only variety in these gardens that produced a large quantity of bloom was The Czar, and trees of this variety growing on a wall facing east have never failed to produce a crop. It is an excellent Plum for preserving or bottling for winter use, and should be grown in every garden.

Crab Apples.—These trees flowered especially well this season, and promise a good crop, as the bloom was strong and healthy. Crabs are well worth growing as they are very ornamental in flower, and the fruit is useful for preserves. John Downie and Dartmouth are two excellent varieties.

Peaches and Nectarines.—In late districts these fruit trees will still require attention in the matter of thinning the growths and fruit. See that the trees do not suffer for want of moisture at the roots, and on warm afternoons syringe them with clear water. In hot, dry soils keep the roots well mulched with decayed manure, and water them frequently.

PLANTS UNDER GLASS.

By F. J. Clark, Gardener to Lt.-Col. Sir George Holford, Westonbirt, Tetbury, Gloucestershire.

Hippeastrum (Amaryllis).—The treatment of these plants after flowering should be directed towards the continuance of a free, healthy growth, calculated to result in the building up of good solid bulbs. Any of the plants which may have been removed from the growing house for use in conservatories or elsewhere should be returned to their proper quarters after having served the purpose for which they were required, with as little delay as possible, n order to minimise the effect of the temporary check to their free and natural growth, which this removal will have caused. The plants now require copious supplies of water, and they should also be given diluted liquid manure on frequent occasions; the drainage from a cow-shed, strained and properly diluted, constitutes one of the best stimulants for these plants. An occasional application of soot water may also be given. Keep the atmosphere of the house moist and syringe the plants morning and afternoon with soft water. The afternoon syringing and closing of the house may be timed to allow the temperature to rise (by sun heat) to 80 after closing the house. Carefully preserve every leaf on the plants and do not cut away the flower stems but allow them to mature naturally, removing the spent flowers by merely breaking them off at the ends of their peduncles.

Plumbago capensis.—For grouping in the conservatory during late summer and early autumn this plant is very useful, and when associated with tall plants of Eucalyptus Globulus and the pretty Francoa ramosa, a charming effect is obtained. The glaucous foliage of the Eucalyptus blends admirably with the pale blue colour of the Plumbago. Plants of the latter which were raised from cuttings inserted last year, should, if not already potted, be shifted into pots of eight inches or nine inches diameter. The flowers should be kept pinched off during the next month or so with a view to securing the best results later. From now onwards the plants should be grown in a cool greenhouse. Syringe them on frequent occasions with clear soft water to keep down red spider, and, as the flowering season approaches, feed the roots liberally with weak manure water and soot water, and give an occasional dressing of some good artificial manure.

THE KITCHEN GARDEN.

By Walter Y. Staward, Gardener to Mrs. John Feeney, The Moat, Berkswell, Warwickshire.

Brassicas.—Where the ground has been prepared and well enriched with manure, Brassicas may be planted out now and another batch in a fortnight. The earliest Savoys and late Cabbages for winter use need plenty of time to form sound hearts; if planted too late they will only form loose heads.

Purple Sprouting Broccoli.—If this vegetable is sown now the seedlings will be ready for planting in good time, as this Broccoli grows very quickly. Seeds of hearting Broccoli may be sown now and the seedlings transplanted when they are large enough to handle. Not every variety suits the district, therefore a few sorts should be tried to find out which are best. Superb is a good hardy variety and withstands severe weather well.

Mushroom Beds.—Damp the surface of the beds in dry weather using a fine rose on the water can. Cut the young Mushrooms before they grow large. Beds may be made in the open now, with good results in the autumn.

Marrows.—Where the Marrow beds have been made no time should be lost in setting out the plants. Give the latter every encouragement to develop, never allowing them to become dry at the roots.

PUBLIC PARKS AND GARDENS.

PLANTING IN ST. JAMES'S PARK.

The removal of the temporary war buildings from St. James's Park and the reconditioning of the bed of the lake having been completed, the Commissioners of Works carried out during the season 1923 24 an extensive scheme of planting, etc., in order to improve the park and counteract the damage caused during the war. The following details may be of general interest.

A great many dead and unsightly trees and shrubs have been removed from the islands; the whole of the ground dug and where necessary manured. Vistas through the islands have been created and efforts made to increase the variety of shrubs, trees and herbaceous plants, as will be seen from the following lists of additions:—

Trees.—14 Cerasus Hiza Kura, 21 Pyrus Malus, 9 P. floribunda, 6 P. f. atropurpurea, 6 P. f. purpurea, 1 Prunus pendula, 36 Laburnums, 6 Standard Laburnums, 1 Fagus sylvatica purpurea pendula Rigello, 1 Acer Negundo variegata, 12 Cerasus, and 25 Cerasus standards.

Shrubs.—36 Azalea mollis, 112 Azaleas, 12 Acer palmatum atropurpureum, 12 Hymenanthera, 6 Rhus typhina laciniata, 6 R. Cotinus, 25 Ruscus racemosus, 6 Bambusa Quilioi, 6 B. flexuosa, 500 Red Rhododendrons, 300 White Rhododendrons, 100 Rhododendron Pink Pearl, 200 common Osier, 6 Euonymus obovatus, 6 Cotoneaster rugosa Henryi, 6 C. acutifolia floccosa, 50 C. horizontalis, 12 C. applanata, 12 Escallonia Donard's Seedling, 12 E. edinensis, 12 E. langleyensis, 12 Diplopappus chrysophyllus, 72 Berberis, 12 green Elaeagnus, and 12 variegated Elaeagnus.

Plants.—6 Gunnera scabra, 50 Hypericum Moserianum, 100 Senecio clivorum, 48 Rheum, 24 Oreocome, 500 Chelone barbata, 400 Hemerocallis flava, 300 dwarf Veronicas, 400 green-leaved Verbascums, 400 silver-leaved Verbascums, 500 Lupins, various, 500 Pink Lupins, 500 Blue Lupins, and 500 Delphiniums.

A few trees have been planted by the lake margins, also several groups of shrubs and many large masses of Iris, Lythrum, Trollius, Astilbe, Rheum, Gunnera, etc. Several species of plants suitable for planting by the margins are being grown in the nurseries at Richmond Park, and these, which include moisture-loving plants such as Lobelias, Mimulus, etc., will be planted shortly.

The following have been planted by the lake margins (fig 154):—

Trees—48 Salix babylonica ramulis aureis, 5 S. Caprea pendula, 1 Specimen Salix babylonica ramulis aureis, 2 Salix daphnoides, 1 S. Salomoni, 5 Taxodium distichum, 6 Cerasus pendulus, 2 Pyrus salicifolia pendula, 3 Prunus Pissardii, 3 P. P. nigra, 12 Acer Negundo variegata, 2 Populus lasiocarpa, and 1 Birch, Young's Weeping.

Shrubs.—50 Cytisus, 12 C. Dallimorei, 12 C. Newry Seedling, 12 Cornus stolonifera, 18 Buddleia prostrata, 24 Spartium junceum, 25 Rubus biflorus 6 Pyracantha Gibbsii, 6 P. crenulata yunnanensis, 25 Berberis Wilsonae, 12 B. Darwinii, 12 Viburnum Opulus, 25 Spiraeas, and 12 Azara microphylla.

Plants.—12 Arundo, 100 Iris Kharput, 200 I. Kochii, 50 I. Cretan, 100 I. Sapphire, 100 I. Alcazar, 50 I Black Prince, 100 I. Innocenza, 100 I. King, 100 I. Mrs. H. Darwin, 100 I. Mme. Blanch Pion, 200 I. Mme. Chereau, 200 I. pallida Como, 200 I. Prosper Laugier, 150 I. Queen of May, 100 I. Rhein Nixe, 50 I. pallida odoratissima 60 Clumps of Iris Seedlings, 100 Iris ochroleuca, 10,000 Spanish Iris, 12 Gunnera manicata, 5 Aralia edulis, 52 Ligularia stenocephala, 48 Cimicifuga simplex, 52 Campanula lactiflora, 1,750 Lythrum, 500 Trollius, 1,100 Spiraea, 6 Gynerium argenteum, 1,000 Anchusa italica, 500 Senecio clivorum, and 500 S. Wilsonianum.

In the lake itself Water Lilies are being planted in suitable positions.

The shrubberies all over the Park have been thinned of all unhealthy and useless shrubs, and so far as funds have permitted, a host of new and more interesting plants have been included. The too familiar Golden Privet and Aucuba have been greatly reduced in numbers.

The shrubs planted include among others

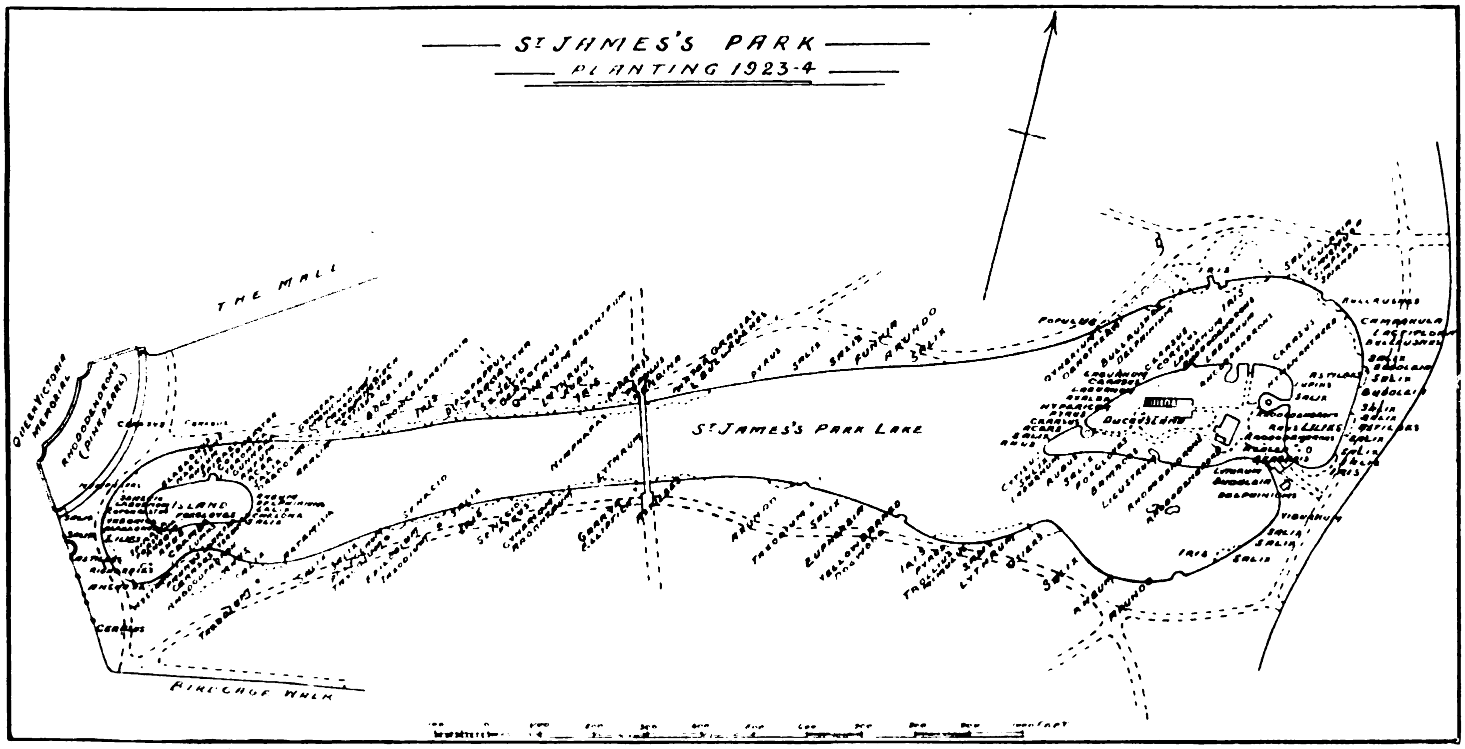

FIG. 154.—PLAN SHOWING THE ARRANGEMENT OF PLANTS AND SHRUBS BY THE LAKE SIDE IN ST. JAMES'S PARK.

those shown below, viz.:—24 bush Wistarias, 6 standard Wistarias, 24 Rhus typhina, 6 Golden Yews, 2 Cryptomeria elegans, 6 Ribes, 12 Pernettyas, 12 Lonicera nitida, 3 Elaeagnus umbellata, 12 Convolvulus Cneorum, 1 Specimen Osmanthus illicifolius, 2 Cornus Mascula variegata, 6 Berberis Hookeri, 2 Cotoneasters, 6 Elscholtzia Stauntonii, 1 Leycesteria, 12 Weigelias, 1 Pittosporum Mayi, 6 Silver Euonymus, 6 Golden Euonymus, 1 Pyracantha, 1 Euonymus ovata, 3 Buddleias, 2 Viburnum Carlesii, 3 Nandina domestica, 6 Calycanthus macrophyllus, 25 Philadelphus and 12 Staphylea colchica.

Many of the plantings are in the nature of an experiment and no doubt there will be failures, but it is hoped that many will be successful. The spring has been very trying but so far the losses have not been heavy.

A feature will be the specimen Rhododendrons, from the bridge over the lake towards Birdcage Walk; half of these were purchased and the other half were presented by Messrs. Waterer, Sons and Crisp, Ltd., Pink Pearl Rhododendrons have been planted in the beds surrounding the Queen Victoria Memorial. A group of seedling Iris near the Bridge was given by W. R. Dykes, Esq., Secretary of the Royal Horticultural Society, and Bamboos for Duck Island are being sent from the Royal Botanic Gardens, Kew.

A display of Dahlias will be made opposite Queen Anne's Gate and will consist of well over 1,000 plants; in addition there will be a border of Michaelmas Daisies and Chrysanthemums.

The plan attached (Fig. 154) shows the position of the most important groups which have been planted by the Lake.

HORTICULTURE AT THE BRITISH EMPIRE EXHIBITION.

ROCK GARDENING.

In the section devoted to Horticulture at Wembley two firms contribute rock garden exhibits. Messrs. R. Wallace and Co. have constructed a very pretty Alpine scene which has been so cleverly screened from their adjacent formal garden and herbaceous walk as in no way to impair the effect. From nearly the highest point a "natural" spring bursts through the rugged grey rocks and the streamlet splashes its way into a pool; from there the water overflows into a lower pool, the two expanses of water being crossed by stepping stones.

Dwarf Conifers play an important part of the planting, and a colony of Pinus Cembra, the Stone Pine, occupies one of the highest positions and adds dignity to the scene. The Mountain Pine, P. montana Maghus, is also represented by specimens which appear to have been buffeted by wind for years, so gnarled and prostrate is the growth; while P. parviflora glauca makes a delightful object with its silvery-grey foliage. Other Conifers planted with effect were Juniperus japonica variegata, J. j. aurea, J. cracivoca, J. prostrata, Retinospora obtusa nana compacta, R. pisifera gracilis, Picea excelsa dumosa, and P. e. pygmaea which adds a touch of bright green colour.

Drifts of Aubrietias, Dianthus, Sedums, Rock Roses, Saxifragas and Campanulas occupy the ledges and crevices, and near the waters edge Primulas, Astilbes and Ferns are freely disposed; a charming setting is found on the grassy slopes of the lower pool where colonies of Orchis foliosa, together with hardy Ferns, Primula helodoxa, P. japonica and P. Red Hugh are effectively grouped. Sub-aquatic and aquatic plants employed are Pontederia cordata, Alisma Plantago, Menyanthes trifoliata, Acorus Calamus, Scirpus lacustris and Sparganium ramosum.

Mr. Ernest Dixon, the other exhibitor, has a very charming model, but the effect, as seen from the public road, is somewhat marred by his other examples of styles of gardening which are placed directly in front of the rock garden exhibit. The rock garden is constructed of well weathered limestone built up high into a background of shrubs, with stream, waterfall and pond complete. On each side of this are built long banks of rock, in the foreground of which an occasional boulder gleams through the green turf. The planting of the various subjects is carried out in no sparse manner, and at the time of our visit blue and purple were the predominating colours provided by masses of Campanula Bellardii, Miranda C. Miss Willmott, Aubrietias in variety, Veronica Royal Blue and V. Trehane, two dwarf forms of V. spicata, the latter possessing golden foliage, Linum perenne and a large array of Violas.

What may be termed the official display of rock gardening is situated near the lake in the centre of the exhibition grounds. The scheme is carried out in a hard sand stone, and a broad, winding path—which also serves as a thoroughfare—is banked on one side with large boulders and arranged so as to form recesses, thereby breaking what otherwise would have been a hard line and giving to it a miniature hillside effect. The side nearer the water's edge is kept low and comparatively free from rock so as to give an uninterrupted view of the lake. The path at the far end leads over a wooden bridge which spans a brook running into the lake. From the bridge a view is obtained of a waterfall, the stones being built high and fairly steep. The arrangement is very good, and the picture is refreshing—as well as unexpected.

Shrubs of great variety are planted, but many—particularly Berberis Bealii—are in a poor state of health and evidently have resented the transplanting. Rhododendrons and Azaleas are made full use of and large standard specimens of the former are planted along one side of the path at stereotyped distances.

KEW NOTES.

A FEW INTERESTING HARDY PLANTS IN FLOWER.

During a very hurried visit to Kew I made notes of a few interesting plants in flower in the herbaceous gardens and the rock garden. In the little rockery at the alpine house (which is being repainted), Erinus alpinus has made great patches that are covered with the pretty purple blossoms. The plant seeds itself freely and many of the plants in bloom were self-sown seedlings. The wall dividing the frame ground from the herbaceous beds carried several very interesting plants in flower and in the border I noted three excellent Alliums, namely, A. pilosum with big, silvery-mauve umbels, attaining a height of two to three feet; A. roseum, a very free-flowering species producing pale blush flowers in umbels, and growing some twelve to eighteen inches high and A. Ostrowskianum, the pick of the batch.

In the rockery Genista pilosa was a sheet of rich, clear yellow, the plant forming a mat a yard or more across; near-by Oxalis enneaphylla, was finely in flower and a little way off was its congener O. adenophylla, which has coarser leafage and a branching inflorescence instead of a single flower, with blooms a much deeper rose. A fine plant of Podophyllum versipelle had developed its curious maroon-coloured blossoms, which seem to hang from the leaf stalk that was terminated with a peltate leaf divided about half way into eight segments. The American P. peltatum is a much smaller plant and the segments of the leaf are reflexed instead of cup shaped as in P. versipelle. A very charming Polygonum, P. sphaerostachyum, with soft clear pink heads of flowers was attractive, and a little way from this was growing the handsome Linum narbonense, its blossoms being a rich satiny blue. A little higher up the rock work Aquilegia coerulea was smothering that particular spot with its charming blossoms, and still higher a hybrid Paeony, P. lutea crossed with P. Delavayi, was hanging out its reddish-brown flowers on stems which grow as tall as those of P. Delavayi, which has dark red blooms. The flower of the hybrid, however, is cup shaped.

Among the Heaths at the entrance to the rockery, Elliott's White Viola showed to great advantage, and the plant had the appearance of being a hybrid of V. gracilis, but I was assured that this is not the case.

Of other interesting flowers mention may be made of Lithospermum intermedium, a fine blue perennial with grassy foliage, a cross between L. prostratum and L. molkpetra, more bushy and taller than intermedium. On the higher parts, amongst the dwarfer Pines, Tulipa Sprengeri was displaying its rich scarlet blossoms in profusion. The plant sows itself naturally and has spread considerably in the past few years. *T.*

RHODDDENDRONS.

(*Continued from p.* 306.)

A third section characteristic of the warm, wet regions, and often epiphytic, is 'Maddeni.' It has nine representatives in the eastern Himalaya, eight in Burma, five in Assam, and the remaining seventeen in Western Yunnan, Kweichou, Siam and thereabouts. It seems probable, therefore, that Indo-Malaya is the richest region of all in Rhododendron; a truth which will become more apparent as exploration proceeds. Naturally it is a region difficult to penetrate. Forty species have been recorded from New Guinea alone, and that in a country which, compared with Western China, for instance, has simply not been touched by explorers. There are fifteen species known in Formosa and a score from the Malay Peninsula. Java, Borneo, and Khasia and Naga Hills of Assam, and particularly the Irrawaddy basin, all have their quota. In the Htawgaw Hills, by the North-eastern frontier of Burma, there are over fifty species; and this region also has been very well explored. From all this we conclude that Rhododendrons thrive in greatest luxuriance at moderate elevations in regions of heavy and continuous precipitation; that they resent drought, though snow holds no terror for them; that they must have shade—even those dwarf forms which cover the open mountain tops rarely see the sun, for they live in a mist bath, and not a few cower down amongst the Bamboo growth which so effectively strangles much alpine vegetation in those wet wastes.

But while the distribution of the peculiarly Indo-Malayan forms agrees very well with the definition of Indo-Malaya, the same can hardly be said of northern-east Asiatic and central Asian species. We cannot rigidly separate the Japanese (east Asiatic) Rhododendrons from those of Manchuria and Amurland, for instance, though these latter districts are in the northern floral region; we cannot even dissociate the Manchurian Rhododendrons from those of Western China.

But since, on general grounds, these divisions of the world's flora must stand, with minor alterations and adjustments, it is better to regard the Rhododendrons which occur beyond their boundaries as out-liers of the main mass. This is clear from the fact that none of the smaller centres, such as Japan or the mainland of north-east Asia, have sections or even phyla peculiar to them. Neither has Hupeh. It is, however, convenient to recognise the chief nuclei of Rhododendron, whether active (as doubtless in Indo-Malaya) or extinct (as probable in north-east Asia); and what we usually find in these regions is a few rare species confined to one particular range of mountains or even to a single peak. Hupeh, for instance, though it involves merely an eastward extension of the Himalayan forms, has one rare species, R. auriculatum, peculiar to the district. Its nearest relative appears to be R. Griffithianum, an equally rare species of Sikkim. Wa-shan, a mountain in Western China, has several species, including the lovely R. Williamsianum, peculiar to it; so also has the Tali range in Yunnan. Indeed, the nearer we approach the vortex of the Rhododendron whirlpool, the more restricted becomes the range of each species, hence the greater the likelihood of a species being confined to one range or peak. We see the same thing frequently on the north-east frontier of Burma.

Ignoring for the moment, then, the main botanical divisions of the globe (since we are dealing not with vegetation in general, but with one genus) we can recognise four main Rhododendron regions, based on the relationships of the species found within the limits of each. These regions are based on the actual species, phyla and sections met with, and these in turn depend ultimately on climatic and geographical conditions, past and present, and must be the result of those conditions. The four divisions which, on this basis, suggest themselves are:—

I. Eurasia.—Practically Drude's northern region as defined on p. 338, with the Mediterranean and central Asian Rhododendron lands included, and part of the East Asiatic region. It comprises, therefore, Europe, Transcaucasia, North-east Asia, Japan, Formosa and the China coast, and N. America. It is the home of the Ponticum and Chrysanthum Rhododendrons and is rich in Azaleas. The Taliense series find their western and northern limits here.

II. Himalaya.—Included in the East Asiatic region of Drude; Nepal, Sikkim, and Bhutan, having affinity with the Indo-Malayan, Chinese, and Eurasian Rhododendron lands; it is, however, directly continuous with only one of them, namely Indo-Malaya. Several sections are endemic here and the region has almost a monopoly of the Arboreum, Campanulatum, Lepidotum and other series.

III. Indo-Malaya.—The same as Drude's Indo-Malayan region. It includes Burma, Assam, S. India and Ceylon, Further India, the East Indian Islands, and western Yunnan. There are a number of endemic phyla, as well as others mainly concentrated here. The area forms a great north-to-south belt.

IV. China.—Including most of Drude's East Asiatic region, except Japan. The Rhododendron area is concentrated mainly in the west centre—Szechwan, Hupeh, and the regions bounded on the south and west by the Yangtze. This is the headquarters of the Lapponicum, Scabrifolium, Triflorum, Cephalanthum and other series. The Taliense series uses it as a stepping stone between Trans-Caucasia and Japan. It embraces many outlying species of Indo-Malayan and Himalayan affinity, and passes gradually into the China coast region with out-liers in Japan and in North-east Asia. Thus little violence is done to the recognised geographical regions, except that the Mediterranean and Central Asiatic regions, containing a few outlying species of Rhododendron, are denied separate recognition.

This classification, perhaps, is academic; but it is not devoid of interest, or even profit. Only by reducing our conceptions of so huge, widespread and varied a genus to some concrete expression can we hope to increase our knowledge. We are still groping for some outward and visible sign of hardiness; the only method we recognise at present is trial and the only tests we apply are altitude and latitude. If the substitution of order for chaos and of precision for vagueness leads to economy of effort in the realm of Rhododendron, something will have been achieved. *F. Kingdon Ward.*

(*To be continued*).

TREES AND SHRUBS.

CARPINUS JAPONICA.

Three species of Japanese Hornbeams are in cultivation, Carpinus cordata, C. japonica and C. laxiflora. Of these the subject of the illustration (fig. 155) is the best known to cultivators of ornamental trees in this country. It was first introduced to Britain by Mr. Charles Maries in 1879, the date also of the introduction of C. cordata. Wild specimens of this Hornbeam form wide spreading trees forty to fifty feet high. The tree, from which the spray illustrated was cut, is one of several sent to Kew about thirty years ago from the Arnold Arboretum the plants having been raised from seeds collected by Professor Sargent in Japan during 1892.

The leaf resembles that of the Common Hornbeam, but instead of the typical short-pointed apex, C. japonica has a long, slender point. The male catkins, so well shown in the illustration, are so much as two inches long. Several female catkins may be seen unfolding above the males, these eventually developing into fruit clusters two to two-and-a-half inches long, not unlike a giant Hop. The bracts are enfolded at the base, almost entirely covering the nuts. In this respect C. japonica and C. cordata provide a connecting link between the Carpinus and the Hop Hornbeam or Ostrya. Siebold went so far as to make a separate genus—Distegocarpus carpinus.

For ornamental planting in the pleasure grounds and park, C. japonica is distinct and attractive, particularly in autumn when carrying an abundance of pendulous fruit clusters. Judging by the Kew specimens the tree is not of fast growth. *A. O.*

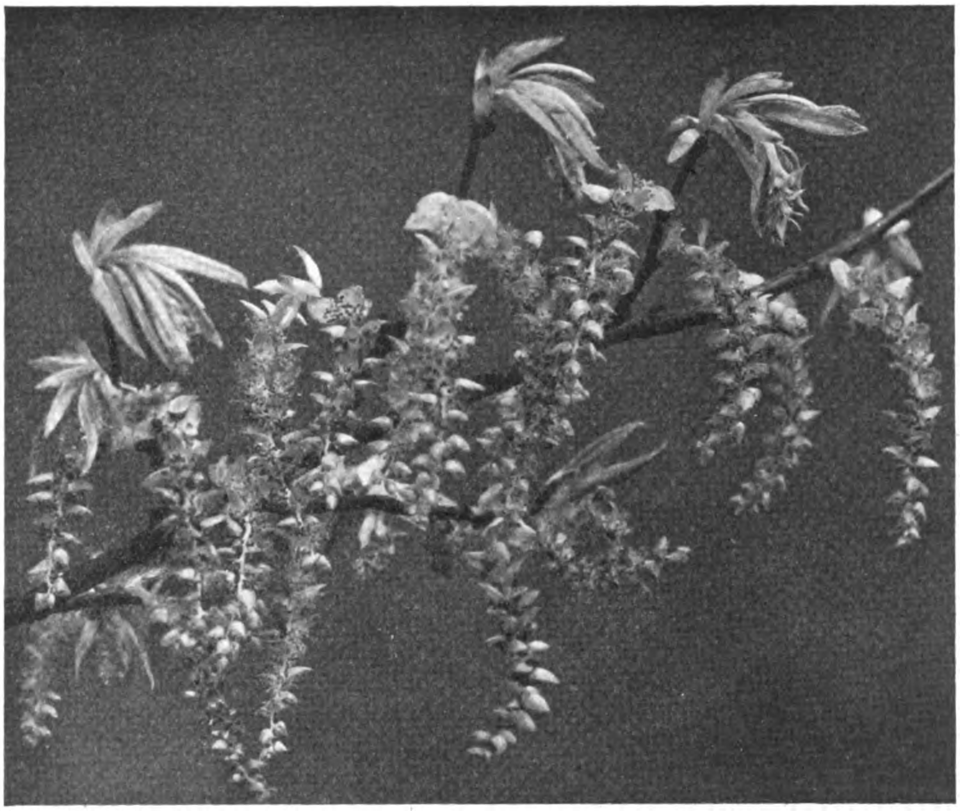

FIG. 155.—MALE AND FEMALE CATKINS OF CARPINUS JAPONICA.

RHODODENDRON GRIERSONIANUM.

Rhododendron Griersonianum was discovered by Mr. G. Forrest in 1917 in the Shweli Valley on the Shweli Salween Divide, in Western Yunnan, on the Burmese Frontier. It is a very showy species (see Fig. 156) with flowers borne in terminal umbels. The colour of the flowers has been variously described as bright red, salmon-rose and orange-salmon, but Forrest's description "a most beautiful shade of soft rose-scarlet, almost vermilion in sun-light," is the best, for judging by the flowers seen at the recent Chelsea Show, the out-door blooms exhibited by Mr. Lionel de Rothschild were very brilliant, and in certain lights approached vermilion. Coming from the Burmese Frontier, although found at an altitude of 9,000 feet, Rhododendron Griersonianum is probably less hardy than certain other species from Western Yunnan. Nevertheless, it has successfully withstood the winter out-of-doors in this country. Mr. J. G. Millais gives a coloured illustration of the species in his *Rhododendrons and the Various Hybrids* (second series), and states that two plants given him in 1921 have survived two winters in Sussex. Col. Stevenson Clark flowered it at Borde Hill, Sussex, in 1923, and Mr. J. C. Williams flowered it at Caerhays, Cornwall, in the same year, and now Mr. Lionel de Rothschild has flowered it at Exbury, near Southampton. Forrest considers R. Griersonianum to be the most brilliantly-coloured Rhododendron seen by him in his recent travels, and he gives the height of the plant as 2-m. If the hardiness of this species is further proved and the plant will flower freely, it should eventually become a popular plant for the decoration of southern and western gardens.

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Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

GARDEN-CRAFT IN THE CANTICLES.—II.

THE words for "Garden" which we find in the Hebrew, as in most other languages, is derived, as we have seen, from words meaning to enclose, protect or guard. A garden is an enclosure, and therefore suggests to us a settled state of existence. The pastoral has given place to the agricultural age, the nomad and wanderer has become a resident, a citizen, a man of routine. His precious things, whether they be grain, vegetables, flowers or fruits, must be guarded so far as possible from every kind of foe. Thus we read of "the garden enclosed" (Canticles IV. 12.); and as the phrase is used figuratively it suggests that the habit of enclosing the garden was an old one, since figures of speech are not used as a rule respecting things which are little known. It is the equivalent of the latin *hortus inclusus.*

Our study to-day, therefore, has reference to ancient methods of enclosing gardens. Many were the foes which had to be kept away, and we are curious to learn what devices were employed by the Hebrew peoples in the days when the Song of Songs was written, and the times which went before. Our sources of information are numerous. We can turn to the words employed and study the history, etymology and related forms. From these we may turn to the ancient literature of the East. After noticing what the Hebrew writers have to say about gardens, enclosures and preserves, and the figurative uses to which they are put, we are able to consult the literature of Egypt, Assyria, Phoenicia and other neighbouring lands. Then we can study the usages which have been in vogue in the East during ages unnumbered, and confirm our findings by the unchanging fashions of these conservative peoples. The difficulty is that the subject can hardly be compressed within the limits of a single article. The matter is well-nigh inexhaustible.

The very first enquiries show us that "the garden enclosed" was treated in two different ways. It might be surrounded either by hedges or by fences, by living plants or by palings, walls or other dead material. We begin with the living hedge or "quickset," and it is both curious and interesting to note that in the East, from time immemorial there has ever been a special liking for Thorns, Briars and prickly plants for hedgerows. Everyone who has travelled in the East, in various parts of Africa, or in South America knows how the different species of Cacti and similar plants are called into requisition for protecting enclosures or making hedges. Before citing illustrations of this from recent literature, however, we will notice the Hebrew words for 'hedge' and 'fence' as we find them in the Old Testament. We shall then understand what was meant by "a garden enclosed." There is the striking passage in Micah (VII. 4.): "The best of them is as a Brier (or Briar); the most upright is sharper (or worse) than a Thorn hedge." It is not our province to expound the words, but we see at once from the parallelism that Thorns and Briars are used for hedgerows. "The way of the sluggard," we read in Proverbs xv. 19, is "as a hedge of Thorns." The Hebrew word *Chedek* comes from *Chadak*, which means 'to be sharp, to pierce or scratch,' and in Arabic there is an allied name for a prickly plant belonging to the Solanaceae, of which I shall have more to say later. Another Hebrew word for hedge is *Mesukah*, and it is used synonymously with *Chedek* in the passage from Micah already quoted. The term most frequently employed by the Hebrew writers, however, was *Gader* or *Gederah*. It assumes a number of forms at different times or in different localities, as *Chadar*, *Cathar*, and the like, the letters g, c, ch being as liable as are d, th and t to undergo transformation. This word *Gader* and its allies comes from a root which means to surround or enclose, and is much in evidence in Hebrew literature In the revised version of the Bible it is almost always translated by our English word 'fence,' which suggests a dead rather than a living form of material. It may allude to stakes, intertwined branches and boughs, boards and palings, or even to walls of brick or stone.

In Lamentations II. 6, we read that the Lord "hath violently taken away his hedge as if it were of a garden," a passage which vividly recalls the words used by Isaiah (V. 5,) in the "Song of the Vineyard": I will take away the hedge thereof, and it shall be eaten up; and break down the wall thereof and it shall be trodden down." This is one of the most instructive passages for us in the whole of Hebrew literature, as it clearly indicates the dual method of enclosure—the living hedge and the dead wall or fence. This fact was noticed long ago by the learned Vitringa who remarked that the difference in signification between the Hebrew words *Mesukah* and *Gader* is that, while the first denotes the thorny or living hedge of the garden or vineyard, the latter indicates the wall of stones which surround it. It is doubtful, however, whether his further observation is equally correct, that the chief use of the *Mesukah,* or hedge, was to keep off men, while the *Gader*, or wall, repelled the beasts. The wild beasts are as unwilling to face a Cactus hedge as men are, as we shall see later.

Another very noteworthy passage is Job I. 10, where the Accuser inquires: "Dost Job fear God for nought? Hast not thou made an hedge about him, and about his house?" In other words, "Is not Job like a garden enclosed?" It is the nearest parallel to Canticles IV. 12 to be found in the Bible, and may be compared with Job III. 23. One other reference must be made before we pass from this branch of the subject. Enclosures were made by living plants, by intertwined branches, and by fences and walls. But they might also be made of boards, and where the King was wealthy the boards might be of the choicest trees. "We will enclose her with boards of cedar," writes the poet" (Canticles VIII. 9).

If now we turn for illustration and confirmation to other Eastern literatures we find much that is of interest in relation to the way in which gardens were enclosed. The Hebrew word for a garden, as we have seen, was *Gan*. This comes from *Ganau* to guard, protect, defend. But defence was sometimes achieved by covering, secluding, or sheltering, as well as by fencing in and surrounding. Hence the word has both meanings, and such languages as Arabic, Syriac and Assyrian have words for garden derived from the same root. Cheyne and other Semitic scholars remind us that the term was employed because the garden was secluded from the surrounding uncultivated country and the incursions of strangers, and was concealed from observation by overshadowing trees. Among the trees which afforded this welcome shade and seclusion were the Fig, Pomegranate, Palm, and others. But Vines, Dates, Sycamores, and other trees were also employed, as we see in the representations of gardens in Theban tombs, to divide the enclosures where the grounds were extensive. Persia and Assyria were long the home of the most exquisitely attended gardens, parks, and paradises, and there can be little doubt that the Hebrews learned much from their observations in these lands, as well as in Egypt. "The Song of Songs" is a late example of Hebrew literature, consequently its writer was able to make use of much garden literature, from other lands.

It is when we turn to the usages of the East as found existing to-day, however, that we receive fullest light on "the garden enclosed," and especially on the kind of plants which were used in the making of garden hedges and fences. As already indicated Cacti, Euphorbias, and other specious plants have always been in request in the Tropics, as the Holly and Blackthorn have been with ourselves, for this purpose. Thus we are told that Tippoo Ali planted one of the Caesalpinias around fortified places because it forms an impenetrable fence. This plant (C. sepiaria) is known as the Mysore Thorn, and is related to the well-known Gold Mohur Tree which is sometimes called Barbadoes Pride and forms the flower fence of the West Indies. Prickly Acacias, such as the Buffalo Thorn of Ceylon (A. latronum) serve the same end in the Deccan.

The Cacti and Euphorbias often bear a striking resemblance to one another, and in some countries one of these, in other lands the other group, serves for making hedges. Grant Allen once wrote that "In India there are no indigenous cactuses: what people take for thickets of cactus are really cactus-like spurges. In the dry soil of India many spurges grow thick and succulent, learn to suppress their leaves, and assume the bizarre appearance of the true cactuses. In flower and fruit, however, they are euphorbic to the end; it is only in the thick and fleshy stem that they resemble their noble and more beautiful western rivals." Many of the Cacti are remarkable for the size and splendour of their blooms. Mr. E. B. Browning writes respecting them—

> "And Cactuses a queen might don,
> If weary of a golden crown,
> And still appear as royal."

One of the most instructive references to our subject of hedges for an Eastern garden is to be found in a letter by Lady Mary Wortley Montagu dated July 31, 1718, during the Embassy to Constantinople. Speaking of Tunis, she says: "The soil is for the most part sandy, but everywhere fruitful of Date, Olive, and Fig trees, which grow without art, yet afford the most delicious fruit in the world. Their vineyards and melon fields are *enclosed by hedges* of that plant we call the Indian Fig [or Prickly Pear], which is an admirable fence, no wild beast being able to pass it. It grows a great height, very thick, and the spikes or thorns are as long and sharp as bodkins; it bears a fruit much eaten by the peasants, and which has no ill-taste." There is still, however, so much to be said on this subject that I must return to it in my next article.

Hilderic Friend.

The first paper on "Garden-Craft in the Canticles" appeared in our issue of May 31.

INDOOR PLANTS.

DIPLADENIAS.

DIPLADENIA constitutes a charming genus of warm greenhouse or stove climbers, and few plants are better deserving of general cultivation by all who possess a warm greenhouse or conservatory. The flowers, which are developed in profusion from early summer until the autumn, are of delicate and pleasing shades of colour, and are seen to the best advantage when hanging in festoons from rafters and roofs. Where free flowering climbers are required, there is no class of plant more suitable for the purpose, and Dipladenias should be included in all collections of warm greenhouse plants.

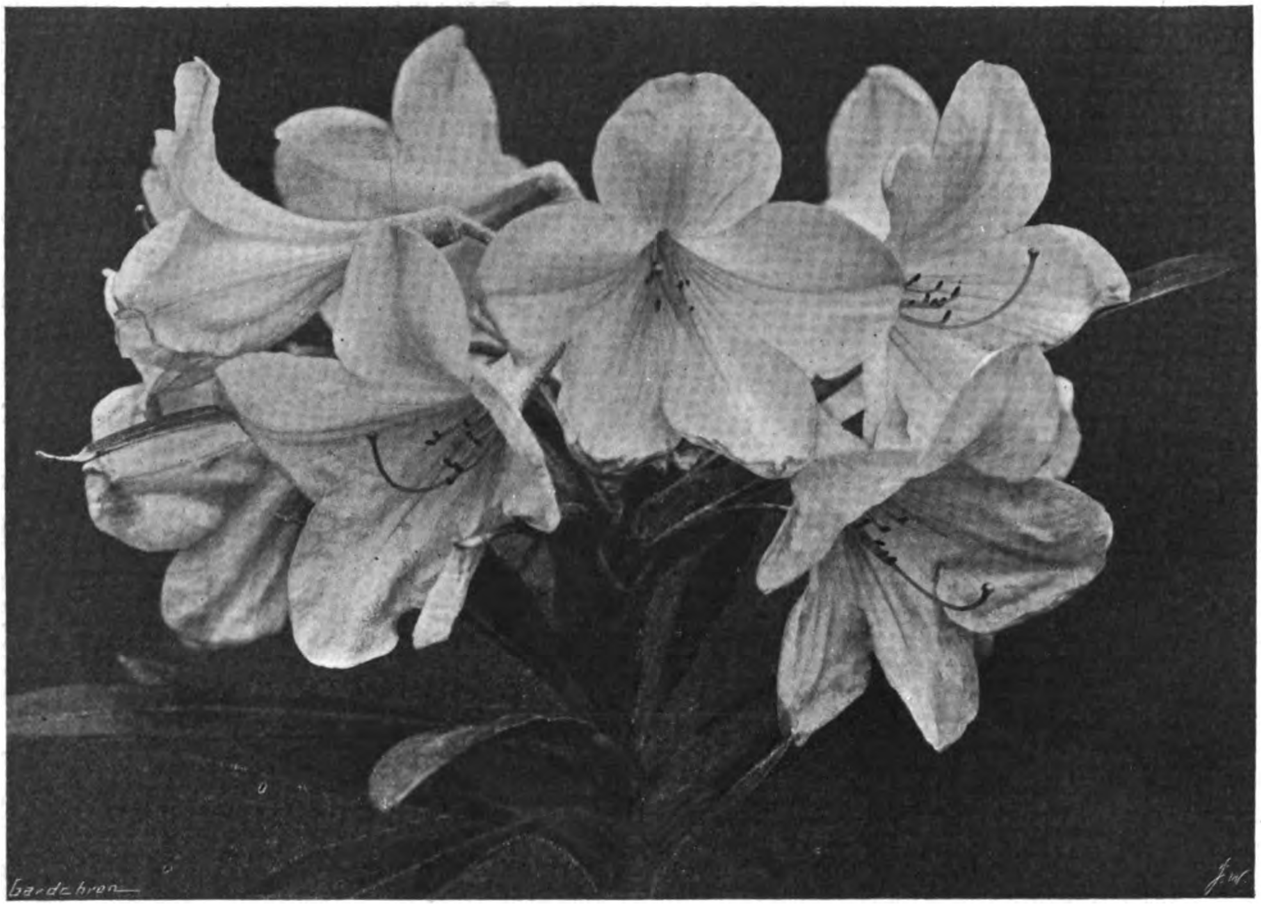

FIG. 156.—RHODODENDRON GRIERSONIANUM.
R.H.S. First Class Certificate, May 27. [(see p. 359).

The flowers are useful for the making of bouquets, either when half or fully expanded, the lovely rose and other colours being very pleasing; the blooms are also suitable for arranging in small vases and for other cut flower purposes.

The plants are easily raised from cuttings made of half-ripened shoots inserted in sandy soil. The spring is a suitable time of the year to root the cuttings, just as they show signs of starting into growth, or when the old wood is cut back for the plants to make their season's growth; cuttings taken off either way make good plants. The cuttings will root in about five to six weeks if put into small thumb pots, singly, in sandy soil and placed under a frame or hand light in gentle bottom heat. They should not be allowed to become dry, and if carefully attended to they will soon root, when they will require shifting into larger receptacles as required. After potting them, place the plants in a house having a temperature of about 65° to 70°, but at the same time be careful not to let them grow weak and spindly.

Plants propagated early make good growth before the winter, and may generally be depended on to winter well. They grow best in a mixture of good fibrous peat, a small quantity of light, turfy loam and silver sand. A little charcoal is beneficial in the soil. Drain the pots well, and pot moderately firmly.

Water the plants sparingly until they have made roots and growth freely. During their growing season they need a fair amount of water, but the amount of moisture should be reduced gradually as autumn draws nigh, and in the winter only just sufficient is needed to keep them from shrivelling. In the summer, when the sun is hot, they should be shaded from the rays of the sun.

Syringe them well underneath the foliage two or three times daily before they come into flower, otherwise red spider will attack the foliage.

In the autumn if the plants are still growing freely, a little liquid manure once a week is beneficial to them until they cease flowering. In the spring they will require repotting; shake off all the old loose soil of the previous year, but be careful not to over-pot them; a pot one size larger is, as a rule, sufficient.

Many growers have an idea that Dipladenias require strong heat to grow them to perfection, but this is a mistake. After they have made a fair start they do best in an intermediate warm house or conservatory with a humid atmosphere. They will gain strength, make robust plants, and flower freely in a temperature of about 60° to 65°. It is not necessary to cultivate them planted out, as they do so well grown in pots. Pot specimens are useful for many purposes, either for covering the roof-rafters and pillars of the plant-house or trained on wire trellis work in different shapes according to taste.

Many hybrids have been raised in this country, and several species are in cultivation. Amongst the best is Dipladenia Brearleyana, which was raised by a working man in the North of England who was very fond of flowers and spent the greater part of his spare time amongst them. He built a small hot house and by diligent exertions produced an entirely new and beautiful Dipladenia, which proved to be one of the finest of its class. The superbly coloured flowers are large and of a rich crimson colour. D. insignis is very floriferous and blooms freely in small pots. The flowers are a rosy-purple, the base of the tube being white. D. hybrida is a vigorous-growing plant with flowers of a rich rosy-carmine. D. amabilis (syn. profusa) has rich purplish-crimson blooms and is very floriferous. D. amoena is a distinct species with pink flowers suffused with rose. There are many others but these are the best for all purposes. There are two species quite distinct from those previously mentioned that require notice. The first D. boliviensis has white flowers and a golden-yellow throat; it is very free-flowering. The plant may be had in flower from April to October and the blooms are useful for cutting purposes. It makes an ideal pot plant, and it does well planted out in a border for covering the pillars and roof-rafters of a warm greenhouse or conservatory, lasting a very long time in flower.

D. atropurpurea is a very distinct species; the flowers are dark purplish-crimson in colour, and it is very free-flowering. It is quite distinct from any other Dipladenia, and makes a useful pot plant when in flower, but it is not so showy as some and is not so generally cultivated. *John Heal, V.M.H.*

NOTICES OF BOOKS.

Peonies in the Little Garden.*

When we saw the name of the authoress on the title-page of this book, expectations were raised, and having read the book we laid it down with the feeling that those expectations had in no way been disappointed. Mrs. Harding is a keen Paeony enthusiast and has an inborn love for the flower. She has before given us a very extensive treatise in her work *The Book of the Peony*, and a glowing tribute to Mrs. Harding's knowledge of the flower is included in the Editor's preface to the book we have now under review.

The Paeony has evidently not reached the high state of popularity in this country as it has in the United States. There is has become so general a favourite as to warrant the foundation of the American Paeony Society, a body which has done admirable work since its inception about ten years ago. The Paeony finds as much favour in America as the Rose does in England, and the flower may almost be regarded as America's national flower.

Mrs. Harding is evidently one of those kind people, seldom met with, who encourages every one to grow her flower and is ever ready to offer unstinted help once a gleam of interest is shown. To this country she has sent collections to grace the Wisley Gardens, and has presented three silver cups to the Royal Horticultural Society to be offered for award during 1924, 1925, and 1926, for the best exhibit by an amateur of three flowers each of six varieties. The first of the cups was offered for competition at the R.H.S. meeting on Wednesday last.

The book deals with the forms of Paeonia albiflora, and the first half or thereabouts is taken up with the descriptions and selections of varieties. It is worthy of note that many of the old and tried varieties, such as Festiva maxima, Duchess de Nemours, etc., in her opinion, are not excelled by many of the more recent introductions, costing fifty to a hundred times the price. The varieties are well selected and arranged to suit the pocket of the would-be purchaser. The descriptions and criticisms are admirable, not of the type found in catalogues, but written with evident knowledge. If a variety has a fault, Mrs. Harding points it out; she compares one variety with another; she praises if a variety is worthy of compliment; she condemns a flower should it not find favour. Many of the American introductions raised by Brand, Pleas, Thurlow, Lockwood, Shaylor, and Richardson receive attention, and a chapter is similarly devoted to varieties of French and English origin. The cultural hints are written in a style which arrests the reader's attention, and stress is laid on certain important matters. Mrs. Harding favours a partially shaded situation for growing Paeonies and recommends autumn as against spring planting. The use of fresh farmyard manure in the soil should be avoided at the time of planting, for although the Paeony is a gross feeder it is stated that the manure encourages diseases. Neither should farmyard manure be used as a mulch over the plant, and on this point she writes "manure is a deadly thing to apply as a mulch for Paeonies. It is still advised and still employed by some gardeners for this purpose, but I think that their number is decreasing as their experience widens. It is entirely possible to use manure freely and with apparent safety for several years. And then, some fine day, it is entirely probable that the insouciant gardener may find his Paeonies a prey of wilt and rot, and blight. . . . Solid manure never touches my Paeonies. They are protected and fed by other materials." There is an interesting chapter on "Root Division and Seedlings," and the authoress decries the system of over-propagating adopted by some nurserymen in their anxiety to distribute varieties before they have sufficient stock to send out really strong plants. Seedling raising, as with most florists' flowers, presents many joys and it is gratifying to note that some of the most beautiful varieties have arisen in small gardens. Mrs. Harding does not think specialised hybridising is necessary, and the work of pollination may be well left to bees and insects. When ripe, the seeds should be gathered and sown at once, for if allowed to become hard or dry they may take two or many years to germinate. When sown directly they are harvested a high percentage of the seeds grow the following spring. It would be interesting to learn if the small percentage of seeds which do not germinate the first year produce better quality flowers. It often happens, particularly in the case of Antirrhinums and herbaceous Phloxes, that the seedlings which are the last to germinate produce the finest blooms. The Paeony takes about four years to obtain the finest flowers from the time the seeds are sown.

"Why some Paeonies do not bloom" is the title of a very instructive chapter, and here the authoress accounts for the causes of failure. The principal reasons are considered under the sub-titles of "Roots Reaching the End of a Useful Existence"; "Transplantation of Large Roots without Division"; "Recent Transplantation"; "Divisions from Roots that are Too Old"; "Divisions from Weak and Overworked Stock"; "Too Deep Planting"; "Improper Location"; "Exhausted or Infected Soil"; "Late Frosts"; and "Diseased Plants." The information in this chapter alone is well worth the price of the book. The concluding chapter is concerned with "Diseases of Paeonies," and wilt, black rot, bud blast, and botrytis are the troubles on the control of which sound advice is offered. The book is well printed and freely illustrated. It forms the third volume of "The Little Garden Series" edited by Mrs. Francis King.

Fungi and Plant Diseases.*

This fairly complete elementary text book has been written for the student in agriculture and horticulture. The first part of the book contains a general survey of fungi and the examples and illustrations are taken wherever possible from easily obtainable material. This method has a good deal to recommend it, for it certainly tends to awaken interest at the outset by calling attention to some easily observed phenomena of this section of plant life. Practical exercises are appended at the end of each chapter of the book and should prove helpful to the student in ultimately fitting him to take up research in plant diseases.

Plant diseases are treated in the second half of the book and these are arranged in their systematic classes as adopted in Part 1. An excellent general review of plant diseases serves as an introduction to this section of the book and a commendable feature is the numerous references to Bulletins, etc., giving full details of the matter referred to in the text. The preparation of fungicides, soil sterilisation, fungi injurious to live-stock, and the destructive insects and pests Acts receive attention in the appendices. The book has been prepared with marked thoroughness, is well printed and arranged in very convenient form. Most of the diagrams, which are freely employed throughout the text, are original.

HARDY FLOWER BORDER.

DORONICUMS.

The Doronicums are useful in gardens because they can be used for cut flowers, bloom early and thrive in quite a variety of soils. They are most effective, however, when seen in the mass, as stated by James A. Paice (on p. 316). D. plantagineum excelsum (Harpur Crewe) is the most popular in gardens at the present day, but I have a clear recollection of the fine effect of D. Pardalianches on a northern estate some years ago. On the steep escarpment of a river valley and near the mansion, about an acre of ground under tall Beech trees became an attractive and never-to-be-forgotten sight every year in June. Both of the above are Continental plants which have become naturalised in plantations of this country, and evidently a little shade is beneficial. D. Pardalianches, in the case alluded to, must have been planted at one time, though no one seemed to know when that happened. Probably only a few roots were planted and allowed to grow as they liked, for they received no attention whatever, and seemed capable of perpetuating themselves indefinitely. Notwithstanding the steepness of the ancient river bank the plants grew two to three feet high and produced a mass of yellow. I have seen the same species in a thicket in Surrey, but the shade was evidently too great, for the plants did not make vigorous growth. *J. F.*

ALPINE GARDEN.

ERINUS ALPINUS.

There is no more delightful plant for dry ledges and chinks in the rock garden, or for naturalising on an old wall, than Erinus alpinus. Though sometimes difficult to start and to keep in places where the winters are wet and bleak, once a few plants are established the self-sown seedlings will generally manage to take care of themselves, the colony widening with every season, the little plants cropping up in all sorts of unexpected places. The flowers of the type are a soft, rosy-purple, and they are borne profusely on stems that may be anything from three inches to six inches in height, the flowering season extending throughout the spring and early summer.

The white form is a charming plant, with foliage of a paler, more emerald-green. Grown in crevices between stones or in the angle of stone steps, this variety has a pretty way or arranging its flowering shoots fan-wise and pressed closely against the stone. This habit may not be altogether peculiar to the white Erinus, but it has often been observed that where a few plants of the latter will all be hugging the nearest stones, as the sprays of Campanula garganica are fond of doing under the same circumstances, a very small proportion of the typical ones will not display any such inclination.

In addition to the above there is the variety carmineus which is similar in every respect to the type, save in the colour of the flowers, which are a much lighter tint, tending towards rose-pink. Then there is a species (or sub-species) known as E. hirsutus (hispanicus) with larger flowers of a softer, clearer tone than the true alpinus; a most desirable little plant and one that is said to have naturalised freely in some places and to have remained true to type.

All these Erinuses seem peculiarly reliable in seeding. E. alpinus seldom shows any variation, and even the variety carmineus (if not also the albino form) will faithfully reproduce its own kind. *A. T. J.*

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* *Peonies in the Little Garden.* By Mrs. Edward Harding. The Atlantic Monthly Press, Boston, U.S.A. Price $1.75.

* *Fungi and Plant Diseases.* By F. T. Bennett, B.Sc., Macmillan and Co., London, 1924. pp. 254. Price 7/6 net.

WATSONIAS IN JAMAICA.

Bellevue, Gordon Town, Jamaica, 4,000 ft. high in the the Port Royal Mountains, was built by French *emigres* in "The Terror." Later it belonged to Capt. Henry Kent, R.N., who was present at the battle of Trafalgar, I am told.

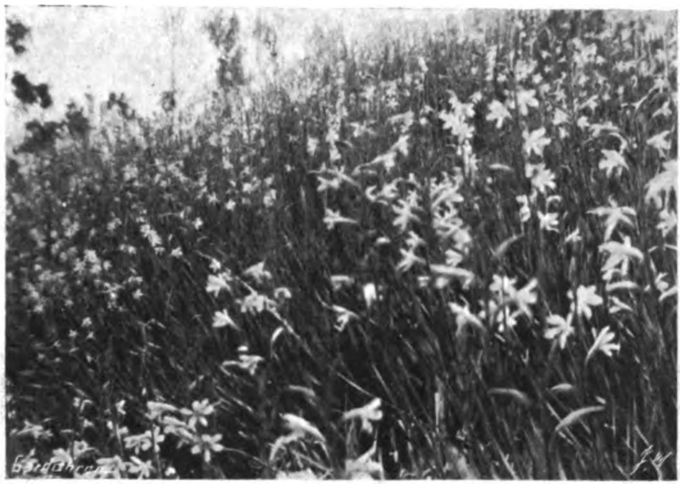


FIG. 157.—WATSONIA ALETROIDES IN JAMAICA

By whose agency the beautiful Watsonia aletroides (Fig. 157) was introduced into the garden I do not know, but eighteen years ago I found growing there a few dozen clumps of this beautiful coral-pink flower. In the autumn I had some of these clumps dug up by a native gardener who divided and replanted the separated bulbs. My gardener's methods were primitive. He stuck one end of his pickaxe into the ground, twisted it about, thrust the bulb into the hole and scratched some earth over it. However, the effect in the spring was beautiful. I was greatly encouraged, and by repeating the digging up, dividing and replanting I soon had a slope of about half an acre below the house planted up.

The late Mr. Robert Sydenham of Birmingham, sent me a present of a dozen bulbs of Watsonia Meriana O'Brienii (syn. W. Ardernei) (Fig. 158.). Though I had seen pictures of this beautiful flower and read the history of its discovery at the Cape I had never seen a plant. The bulbs grew and flowered beautifully and formed matted clumps, and amongst the snow-white spikes appeared a sport, I believe, a beautiful, clear Cyclamen mauve, but of the same form as the plant widely known as W. Ardernei. I then began to look about for more space for my Watsonias. Above the house is another slope to the summit of the mountain. This was overgrown by a thicket of a species of Bracken Fern—the brilliant bright green of an Irish bog, but in the summer becoming tinder dry and a source of danger in forest fires. This I had cleared, and by degrees have had it planted with Watsonias of both kinds, leaving Juniper Cedars, Lyonsias, and Clethras, all of which are natives of the high mountains.

I had goat paths cut all through my Watsonia field, as being suitable to the surroundings and from the mountain top, with views of the sea and Kingston Harbour on one side and the Blue Mountain Peak on the other the effect is most exquisite. A friend said a few days ago, "I feel like the gods walking through fields of Asphodel, only Asphodel cannot compare with your flowers!"

Watsonias are seen at their best during the rising or the setting of the sun. They have a quality I have seen in few other flowers—that of a glowing, transparent reflection of light. At dusk they shine, tiny stars of pink.

I have sent a great many of the bulbs to friends in England and Scotland where they have done well on the west coast. I understand Watsonias do well in the Scillies and that they were much admired by the Prince of Wales when he visited Tresco from whence he departed with arms full of them. If they could be cultivated in the south-west of England they should be of great value in the flower market. The flowers carry well and last long in water, and the buds come out as those of Gladioli do.

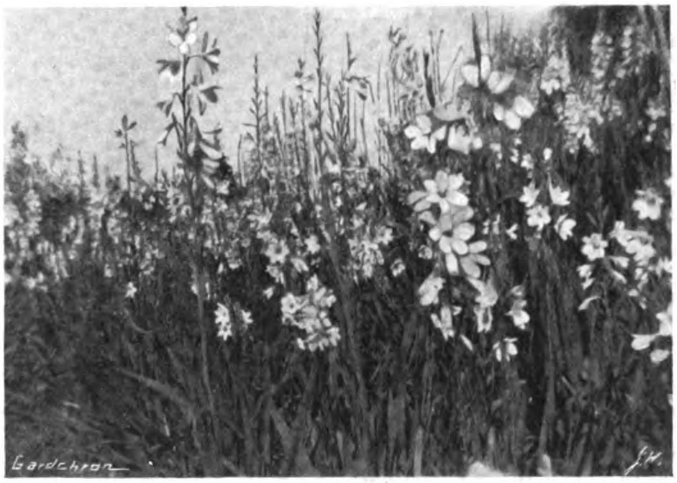


FIG. 158.—WATSONIA MERIANA O'BRIENII (SYN. ARDERNEI) IN JAMAICA.

One and one only drawback might be that here I have observed W. aletroides comes a poor colour during the first year after replanting, and that the spikes of all kinds twist down stiffly in the form of an S. In the second year these faults do not appear. The bulbs of W. Meriana O'Brienii (syn. Ardernei) become so matted in four or five years time they do not flower well and have to be divided. *Mary Swettenham, Bellevue.*

IRISES.

IRISES FOR MASSED EFFECT.

The value of the Flag Iris for massed effect was strikingly shown in these gardens last week where I. germanica Kharpat is grown at the base of a Rose pergola. The length of the pergola is nearly 300 feet, its width 20 feet, and the borders contain about 7,000 Irises. These were planted in October, 1922, single crowns being used. Not more than 40 per cent. flowered in 1923, but the plants made good growth and about 90 per cent. of them flowered this year, all throwing strong spikes carrying from four to seven flowers. *W. Auton, Pyrford Court Gardens, near Woking, Surrey.*

IRIS GRACILIPES.

Of the many good rock-garden Irises there is no species which I can call to mind that combines ease of culture with such elegance and charm as I. gracilipes. This is a dwarf Japanese species of some six inches in height, perfectly hardy and so amenable to culture that it seems to do as well in a dry, sun-exposed pocket of poor soil as it does under cooler conditions. We have grown this delightful plant here in various conditions and soils for many years, and so long as the latter has been well-drained the little Iris has prospered exceedingly.

I. gracilipes is a deciduous species which, from short rhizomes often held clear of the soil, sends up a sheaf of fine, grassy leaves of a pale, yellowish green. About the end of May the flowers appear just above the foliage. These, about one-and-a-half inch across, are among the most dainty of those of their race, very silken and crimpy in texture, and of a pale watery blue, enriched with veinings of purple, touches of gold and fringes of silver hairs.

All through the later spring and often well into summer a succession of these pretty flowers will be maintained and this, as I have suggested, with a minimum of care as regards culture. We have some old clumps, wedged in between stones, which have had nothing beyond the scantiest of top-dressing for years, yet they are as vigorous and full of flower to-day as ever they were. To propagate the plant, all one needs do is to pull off a few of the rhizomes and plant them where desired. *A. T. J.*

MARKET FRUIT GARDEN.

We were not favoured with the dry and sunny May which was so much desired for the benefit of the first crops. On the contrary it was a very wet month. At my place 3.18 inches of rain fell on nineteen days. As the temperature was fairly high, fruit trees have made a lot of growth. This has enabled them to romp away from what few insect pests there were; but the leaves are so tender and sappy that they will be likely to fall a ready prey to fungous idseases, for which the moist conditions are very favourable. My plantations are unusually free from insect pests this season, with the exception of Apple blossom weevil; and even this has not taken such heavy toll of the blooms as in recent years. In some districts, however, I have seen severe attacks of caterpillars; and the weather has made it difficult to cope with them. It has been impossible to do much effective work against weeds, which reset themselves quickly after disturbance. There is, however, plenty of grass-cutting to occupy the hands in wet weather, as several plantations are under "sod mulch" and "sod strip" culture.

Fruit Prospects.

Plums have not set at all well with me, even where they blossomed satisfactorily. Czar seems to be the favourable exception in most districts. My River's Early Prolific trees were full of bloom, but little of it has set, and the crop will be light. Belle de Louvain has set a light to moderate crop. The failure is not surprising, as the weather was wet and windy when the bloom was open.

Apples seem to be setting well, but many varieties did not bloom. Almost everywhere the crop is described as patchy. I appear to be going to have good crops of Bramley's Seedling, Newton Wonder, Queen, Early Julian, Early Victoria, Royal Jubilee, Lord Derby, and Charles Ross; but the more valuable dessert varieties which form the bulk of my trees are very light. Beauty of Bath and Mr. Gladstone were almost entirely without bloom; Cox's Orange Pippin and Allington Pippin had very little; and Worcester Pearmain only a moderate amount. Blenheim Pippin gives good promise so far. In the West Midlands, which I visited recently, Apples are decidedly more promising than they are with me; and I am told that the same may be said of Norfolk. In Kent, however, indications are for a patchy crop, light on the whole.

Pears and Cherries bloomed profusely in my garden, but they have not set very well. All the soft fruits, including Strawberries, look remarkably promising for good crops so far.

Apple and Pear Scab.

Such a wet May was sure to favour scab. The usual instructions for its prevention are to spray with Bordeaux mixture or lime sulphur within ten days of the fall of the petals. This may easily be too late in a wet season. This year I found signs of scab on the leaves of Worcester Pearmain some days before the petals fell, and therefore decided to spray immediately, disregarding the rule not to spray whilst the bloom is open. This seems to have been the right course, for the disease has not spread on the sprayed trees up to the time of writing, whilst on Beauty of Bath, which was not treated, it has made headway. This last variety used to be practically free from scab with me, but it was badly affected last year. Apparently it will always have to be sprayed in future.

Mine is not a Pear district, and it is seldom that the crop escapes scab. The disease appears to be more difficult to control than on Apples. I sprayed so soon as the petals began to fall, but all sign of the wash was quickly removed from the shiny leaves by rain, and many of the fruitlets are already scabbed.

It would probably be a good thing to spray for scab just before the opening of the bloom as well as just after its fall. This, however, would be difficult on a fruit farm, as at that time we are busy with nicotine and soap to control aphides and other insects.

Calcium caseinate Spreader.

Those growers who are using calcium caseinate spreader with arsenate of lead, lime-sulphur, and other washes, probably find it very troublesome to dissolve. However it is done the stuff will go into lumps which are difficult to get rid of. I find it much simpler to buy finely-powdered casein and lime separately, mix the casein with water first, and then add the lime. The casein then dissolves without the slightest trouble, and the mixture can be poured through a strainer into the wash. Quick-lime in lumps should be bought, slaked with water, and passed through a fine sieve. The proper mixture consists of 75 per cent. casein and 25 per cent. slaked lime; and of this about two pounds are used in 100 gallons of wash. My plan is to carry the casein and slaked lime into the orchard in separate "trug" baskets, also a tin which holds just three ounces of casein. Three tins full of casein are measured into a pail, and water added very gradually, stirring all the time till a thin cream is produced. Then one tin of lime is added, and stirred into the cream, a little more water being given if necessary. After the mixture has been stirred for a minute or two it can be thinned down with more water, and strained into the wash. This gives me nearly the right amount of spreader for each of the 40-gallon barrels in which the wash is mixed.

Apparently we, in England, use this spreader about six times as strong as they do in America, where it was first employed. I do not know whether this is necessary or advisable. Anyhow it is well worth using. The extra cost is trifling, and the wash certainly covers the leaves much more evenly; and I do not think the chemicals are washed off so easily by rain, though some growers hold the contrary opinion. It is claimed that, with the addition of this spreader, fungicides may be used weaker than without it, and still do their work. If this proves to be the case the advantage will be considerable. It means, for instance, that scab may be controlled by Bordeaux mixture diluted so much as to reduce to a minimum any risk of scorching the leaves or russetting the fruit. I am trying Bordeaux mixture at little more than half strength with the spreader.

Non-Returnable Packages.

At the next Imperial Fruit Show, to be held at Birmingham in the autumn, there will be a new class for Apples shown in non-returnable packages other than the standard bushel box and the half-barrel. It is to be hoped that this effort to discover something new in packages will meet with a good response. The standard box was designed by overseas growers as the most suitable package for shipment. It has always seemed to me to be a pity that we should tamely assume that it must also be best for our trade with near markets. It is unnecessarily substantial, and has to be fastened down with a "bulge" over the fruit, which ought not to be essential for short journeys. It is true that this bulge is unobjectionable if just the right degree of pressure is obtained, and if the boxes are properly handled on their way to the market; but these conditions cannot invariably be ensured, and the fruit is sometimes bruised and flattened. A greater objection to the box, however, is that it is too large for choice dessert Apples. A package to hold half-a-bushel (say 20 lb.) would be better. There are such containers on the market, but any that I have seen are too dear, most of them costing at least as much as the standard box, which holds double the weight of fruit. Tomato growers, in connection with their advertising scheme, have gone to much trouble to find suitable packages; and most of them have adopted a light box which holds 12 lb. of fruit. A similar box, but large enough to hold 20 lb. of Apples, would probably be as good as anything for orchard fruit. The present "half-boxes" are too shallow. I am not by any means an enemy to the existing standard box, which I use to some extent; but I have always thought it a pity to assume that it is the ideal package without making an effort to discover something better. As for the half-barrel, which is used at the Imperial Shows and but very little elsewhere, the sooner that is given up the better. It is second-hand, for one thing, which is quite enough to condemn it; and it is a most difficult thing to pack well in. *Market Grower.*

[Apropos of *Market Grower's* remarks on the fruit prospects the Monthly Agricultural Report, published by the Minister of Agriculture, states that Apple trees generally are carrying average crops, the fruit having set well, but in a few districts only light yields are expected. Of dessert varieties Cox's Orange Pippin promises a light yield, Worcester Pearmain somewhat below average, James Grieve fairly good, and Allington Pippin fair crops. Prospects for early culinary varieties are fair, while Lane's Prince Albert are patchy, and Newton Wonder and Bramley's Seedling good.—Eds.]

HYBRID GOOSEBERRIES.

Three, or perhaps four, years ago, a plant of what was supposed to be a natural cross between a Black Currant and a Gooseberry was found growing in one of the Northern counties of Scotland, and the director of the Royal Horticultural Society's gardens at Wisley referred in a garden paper to its resemblance to some hybrid Gooseberries sent to Wisley by the writer in 1917.

These hybrids I obtained by crossing Red Jacket Gooseberry with Ribes divaricatum, and I send you a photograph (Fig. 159) of a branchlet in fruit—almost natural size. Red Jacket is a mildew-proof Canadian Gooseberry of excellent flavour raised by the late Dr. Wm. Saunders, Director of the Dominion of Canada Experimental Farms, by crossing the well-known English variety Warrington with Houghton Seedling. Ribes divaricatum is a Pacific Coast species which has berries not unlike those of the Black Currant—though it belongs to a different division of the genus. R. divaricatum was introduced to Britain from the Columbia River district of Oregon almost a hundred years ago, and as it evidently crosses freely with the Gooseberry it might be quite possible to find hybrid seedlings growing in Britain.

Bulletin No. 57 of the Department of Agriculture of Canada gives extracts from a paper read by Dr. Saunders before the Botanical Section of the British Association at Toronto, Canada, in 1897, in which he gave his experience in intercrossing a number of the wild and cultivated species and and varieties of both Gooseberries and Currants, among them the Gooseberry × Black Currant. It made some little difference which of the two were the seed-parent, but of all the hybrids raised, though they grew strong and flowered well and were to all appearances sexually perfect, only one bore fruits, and that after several years waiting, and the seeds, when sown, refused to germinate.

The hybrid illustrated was raised at a time when mildew in the English varieties was almost uncontrollable in British Columbia. This, and the others raised with it, have less sugar in the fruit than the English type, but when fully ripe are pleasant to the taste. *G. Fraser, Ucluelet, British Columbia, Canada.*

FRUIT FARMS IN THE WEST MIDLANDS.

A most interesting tour of fruit plantations in Herefordshire and Worcestershire, organised by the Federation of British Growers, took place at the end of May. From Great Malvern as headquarters, the party of growers from all parts of the country, varying in numbers from 120 to 160 on the different days, paid visits of inspection to a dozen fruit plantations scattered over a wide area.

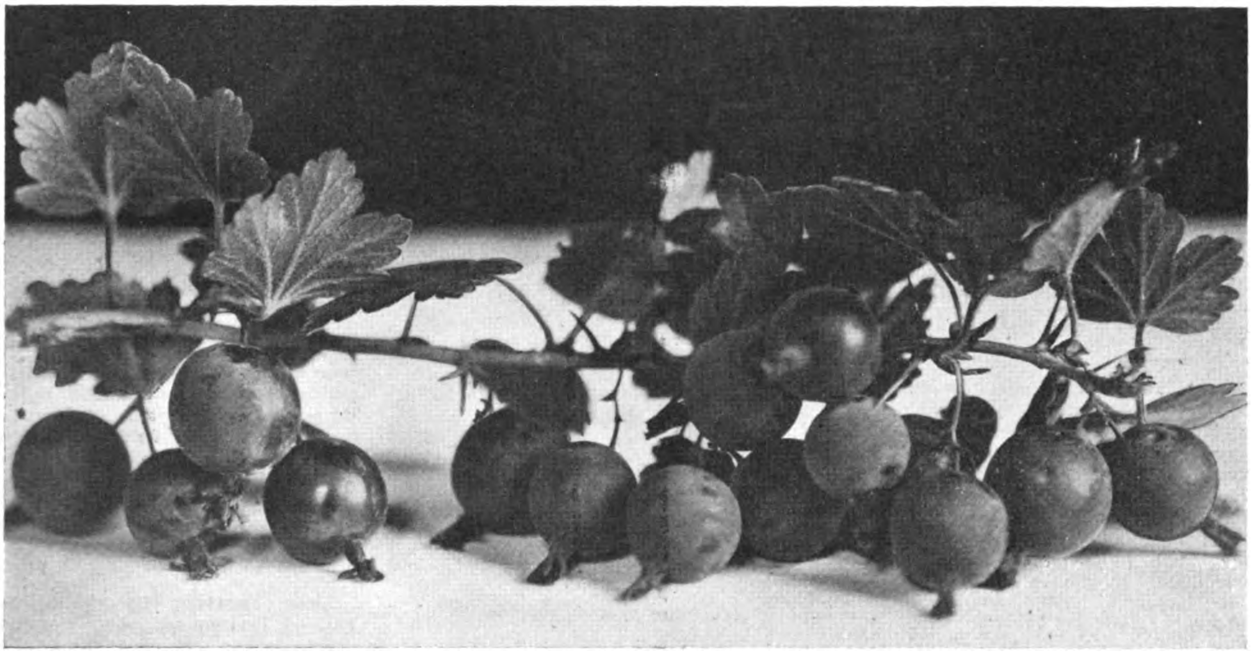


FIG. 159.—A GOOSEBERRY—BLACK CURRANT HYBRID RED JACKET GOOSEBERRY × RIBES DIVARICATUM (SEE P. 364).

The district affords interesting variety of methods and conditions. There is a great contrast, for instance, between the plantations on the Old Red Sandstone in the Ledbury district, seen on the first day, and the holdings on various soils of the Inferior Oolite and Lower Lias formations visited on the second day at Pershore. The former are large places, planted mostly on high, sloping ground to escape frost, and laid out on modern commercial lines, with the trees well spaced to admit of the free use of tractor and horse-drawn implements. Great attention is paid here to the control of pests and diseases, a very full programme of spraying being carried out by means of power sprayers. These places are models of what a modern commercial fruit farm should be. In the Pershore area, on the other hand the plantations are small and have been established much longer, and consequently, are laid out on old-fashioned lines, with much mixing of varieties, classes of fruit and styles of tree. They are, however, very productive, being cultivated on intensive lines. Interplanting with soft fruits and vegetables is the rule, hardly a foot of space being wasted. It is here, of course, that the Pershore Egg Plum is seen at its best; but it has a light crop this year, except in a few favoured spots. The plantations inspected on the third day, in the district round Hereford, are again on modern lines. These are on medium soil, glacial drift overlying Old Red Sandstone.

One of the most interesting places visited was Hilltop Fruit Farm, Ledbury, managed by Mr. A. Haggard for the trustees of the late Mr. H. S. H. Bickham. It was here that the early autumn use of bud-forming manures, to which reference has often been made in these pages, had its inception. Mr. Haggard still believes in the liberal use of organic fertilisers, but he has lost faith in the bud-forming idea, and tends to get his manures on in June rather than in August. He considers that late application is apt to cause autumn growth which may not ripen. It is claimed that this plantation has carried regular paying crops since 1914, but Mr. Haggard is too wise to attribute this definately to the manuring.

Commander R. C. Richardson, on the adjoining farm, supplies his organic material in another way. He carries on clean cultivation with a tractor until mid-season, then allows the weeds to grow till they are ploughed under in winter.

The outstanding lesson of the tour is the evidence afforded as to the supreme importance of insect pest control. It is only where pests were well controlled in 1923, when insect infestations were so severe, that there are full crops promising this year. Trees which were almost defoliated last season not only lost their crops then but for this year also. In this connection it is necessary to mention the success obtained by the winter spraying with a proprietary carbolineum wash. The most convincing evidence was shown in Mr. J. H. W. Best's plantations at Suckley, where the fullest set of Plums seen on the tour is carried on trees which were kept free from leaf-curling aphis in 1923 by spraying with carbolineum during the previous winter. In one case Mr. Best sprayed four rows right through a large plantation. Those rows were saved from aphis during 1923, whilst the rest of the trees retained hardly any leaves, in spite of the usual summer sprayings. This year the four treated rows may be distinguished at a glance because of their superior growth and healthy foliage; and they are carrying a good crop, whilst the other trees have scarcely any bloom or fruit. This wash, which is used very strong whilst the trees are quite dormant, destroys aphis eggs or prevents them from hatching. Caterpillars are controlled to considerably less extent.

The running of pigs in fruit plantations was seen on several farms. Mr. G. Marshall, Breinton Manor, Hereford, has sown down his orchards of standards and large bush Apples and other fruits with grass and Clover mixtures, divided them into long, narrow pens with wire netting, and is running in them 300 to 400 pedigree Middle White pigs. The stock keeps the grass grazed down and manures the trees at the same time. The interesting point is that, though none of the pigs are rung, they have not in any case made holes in the ground. The secret of this is that they are given access to a special mixture of minerals, which supplies their needs in this respect. There are cases, however, in which pigs are required to root in order to convert grass or weedy orchards into clean arable. An instance where this is being most successfully done was seen at Overbury Orchards, Tewkesbury. The pigs are penned thickly in an old orchard which was under grass until last year, but is now being thoroughly cultivated. At this place Mr. R. Holland-Martin has, since 1921, planted a very extensive area of bush trees and soft fruits, which is being managed by Mr. R. G. W. Bush. The lay-out is most attractive, and it will be interesting to see how the trees turn out on a southern slope, at an altitude of 300 to 800 feet, on soil that is light and quick-drying.

What might be called the model fruit farm of the tour is that of Mr. F. Boddington, of Burghill, Hereford. It was the cleanest place seen, with regard to both pest control and soil cultivation. There was hardly a weed to be found. The trees, too, are beautifully shaped. The various soft fruits do well, but unfortunately the owner has not so far been rewarded by heavy crops of top fruits. Possibly the reason might be found in the adoption of a more severe style of pruning than was seen on most of the other places, where little more than thinning out appeared to be the rule.

On a neighbouring farm, Mr. H. J. Pewtress has orchards and nursery stock on the site of Thomas Andrew Knight's old nurseries; and we were shown some fine Cherries which were raised from some of Mr. Knight's trees.

Unfortunately only a brief inspection was possible of Mr. F. Paget Norbury's extensive plantations at Sherridge. Here more dessert Apples are grown than on most of the places; these include Cox's Orange Pippin, James Grieve Worcester Pearmain, Ellison's

Orange and Charles Ross. Mr. Norbury has a few trees of the American variety Delicious, which he is testing and considers to be promising. It has a flavour resembling that of a Melon. He also grows Jonathan.

Amongst the soft fruits seen on the tour were several fine lots of Black Currants. Baldwin is grown almost exclusively, the heavy crops secured being considered ample compensation for its liability to bud mite. Much care is taken to secure good strains. Loganberries are grown to some extent, but the area is not likely to increase because it is not always easy to find a market for the fruit.

Variety was secured by a visit to the Pershore Co-operative Fruit Market, which has now been in successful operation for fifteen years. There are some 600 members, who supply most of the produce, which is sold by auction to dealers and representatives of the salesmen in big consuming centres. Most of the produce goes to large towns in Wales, the Midlands and the North. The charge for selling is seven-and-a-half per cent, and any surplus over working expenses is returned to the members

A visit was paid also to the cider mills of Messrs. H. P. Bulmer and Co., Hereford, where the interesting process of making champagne cider was followed. These mills have plant for washing and pressing 200 tons of Apples a day during the season when they are available. Mr. Bulmer says that the popularity of cider is increasing, and that more cider Apples ought to be planted to meet the demand. The low-grade fruit of the ordinary market varieties is unfortunately unsuitable for making good cider, and should go to vinegar mills. *Market Grower*

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Annuals for Greenhouse and Conservatory Decoration.—May I be permitted to give a word of praise for the Canterbury Bell. We are so accustomed to give credit to the Chimney Campanula, C. pyramidalis, that we may overlook the merits of its relative the Canterbury Bell. The display these plants make either in the greenhouse, conservatory, or even as cut blooms is wonderful, and as they are grown with little trouble it is remarkable that they are not cultivated more extensively. The seed should be sown in early March and when the seedlings are large enough to handle they should be pricked out in boxes and later transferred to the open in soil that was well manured the previous season, setting them one foot apart in rows made one foot six inches asunder. Early in September the plants should be lifted carefully and placed in 9-inch pots, in a compost consisting of three parts loam, half part well decayed manure that has been passed through a ⅜-inch sieve, and a half part leaf-mould and coarse sand. After potting the plants grow them in a cold frame and keep them shaded for a few days. During the winter very little protection is needed, but as much air as possible should be admitted on all available occasions, as the plants are liable to suffer from damp. Careful watering is essential at all times. In the early spring the plants may be transferred to a cool greenhouse where they will develop crowded branches of delightful bells. As a stimulant liquid manure made by dissolving equal parts of hen manure and soot and suitably diluted, may be used. *George H. Preece.*

Alpines at Glasnevin.—Rock garden plants generally are flowering here in great variety. In addition to the usual masses of Aubrietias, Alyssum saxatile, and others, a large sloping bed of Viola gracilis with daintily formed flowers of deep violet, each with a white eye, claims a large share of attention. Polygala calcarea is especially noteworthy on account of the fine blue colour of the flowers, and many Aethionemas are attractive in their masses of pale pink. Geum Borisii, with large, deep, orange-red flowers is worthy of a place in the rock garden and blooms over a long season. Primulas are represented by P. chionantha, P. Wardii, P. chrysopa, P. pulverulenta and P. involucrata, in the moister parts, while P. latifolia has established itself in a cleft between stones, where it is producing freely its heads of Plum-coloured flowers. *J. W. Besant, Glasnevin.*

Young Lads and Horticulture.—The uncertainty as to what the future may have in store for the gardener's craft, is a very important factor for parents to take into consideration, where their sons have a desire to become gardeners. There are many other factors which are of equal importance, including the wages a boy will receive at the beginning of his career, and later the great competition in finding a suitable place. Unskilled men in other industries receive more money per week than the practical skilled gardener. *V. H. Lucas.*

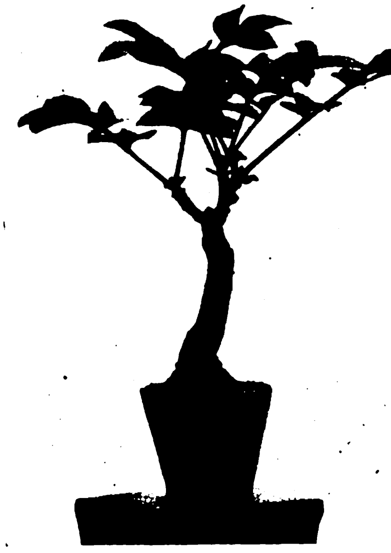


FIG. 160.—A DWARFED ASH TREE, THIRTEEN YEARS OLD.

The Dwarfing of Trees.—I enclose a photograph (fig. 160) of the dwarf Ash tree which I exhibited at Chelsea Show. It is thirteen years old, weighs less than an ounce—including pot and soil—and the top of the branches are only two-and-a-quarter inches above the soil. It would be interesting to know what is being done in England, professionally or by amateurs, in the dwarfing of trees, and how this specimen compares in the ratio of age to weight with any other tree dwarfed in England or elsewhere. I may point out that the dwarfing of trees would form an ideal hobby for an invalid who, though fond of horticulture, is not able to get out of doors, or for a person living in a flat. *John T. Haynes, Streatham.*

Begonias, Clerodendrons and Hydrangeas at Chelsea.—Many visitors to the Chelsea Show were much interested in the many excellent exhibits of indoor plants. Begonias, useful for large and small gardens, were shown in many varieties. Sorts suitable for hanging baskets were well represented, and these should certainly find favour with many who are called upon to carry out various decorative schemes. One exhibitor added greatly to the effect of his group by using an edging of small plants of Pilea muscosa and Panicum variegatum. Some of the finest plants of Clerodendron fallax which I have seen were shown. These plants are generally seen at their best in the late summer and autumn. The spreading, ample foliage and large panicles of bright scarlet flowers were very attractive and demonstrated the value of this highly decorative plant for spring use. Hydrangeas were shown in abundance and in many varieties. Growers who aim at producing blue flowers must have been very interested in the fine plants carrying immense heads of intense blue flowers. Although blue flowered Hydrangeas have been popular for many years there still remains a fascinating uncertainty respecting their production. A very fine variety, Etincelant, with bright carmine flowers was noted. *Colin Ruse, The Hyde Gardens, near Luton.*

Geum Mrs. Bradshaw.—Referring to the note in your issue of June 7, I have observed the frequency with which this Geum produces its flowers at two periods of the year, as mentioned by your correspondent. It is rather difficult to understand why the plant appears to be so short-lived in some gardens while it is a true hardy perennial in others. I have old plants in my own garden, but I know of one with apparently identical soil and surroundings, with, if anything, more favourable conditions of other kinds, where this Geum always dies after flowering. *S. Arnott.*

Romneya trichocarpa.—I note that in your "Answers to Correspondents" column, page 296, May 17, "*H*" is apparently enquiring about Romneya trichocarpa. Perhaps the following would be of interest to him: Messrs. Thompson and Morgan of Ipswich list three species of Romneya in their 1924 seed list, namely, R. Coulteri, R. trichocalyx and R. trichocarpa. In their notes on the best novelties of 1924 they state in reference to R. trichocarpa:—"This is a newly recognised species which, as far as we know, has not yet been grown in this country. Our collector in California informs us that it is a much better plant than Romneya Coulteri, larger flowers and much more vigorous. This should prove an acquisition to English gardens and should not be confused with R. trichocalyx." I should be glad if any of your many contributors could give me some information on the Marvel of Peru (Mirabilis Jalapa). *J. H. P.*

Lime Spraying (Historical).——Under the title "Traitement des Pommiers par la chaux," over the pseudonym *Un Rural* (*Le Cidre et le Poiré*, Dec. 1893, p. 499), is a record of what must be perhaps the first attempt at lime spraying as contrasted with the much older plan of lime-washing the trunks only. Anyhow, the idea seems to have been original and to be worthy of recording here as a contribution to the history of the treatment. The writer recounts how after trial on his garden trees for several years, and noting that they bore well and kept clean, he decided to try on a larger scale on a farm which he let and whose tenant agreed to bear half the cost; the orchard consisted of 212 trees and he employed a small garden engine, which had served in his preliminary experiments. The proceedings were interrupted by weather and so extended over a week with the use of eight men. Two men carted the lime and water and sprinkled some of the latter on the former; two men put the lime into vessels, stirred it up with more water, racked it over into a second vessel and again into a third; two men transported the liquor and two men pumped; 1,000 kilos (roughly one ton) of rock lime was used. It may be noted that the liquor was put on in a warm, milk-like condition, just as some modern growers insist now on the importance of putting it on whilst still warm. I understand that the process was new in this country in 1896, and *Un Rural* seems to have begun his trials in 1890. *H. E. Durham.*

SOCIETIES.

ROYAL HORTICULTURAL.

June 11 and 12.—The ordinary fortnightly meeting, owing to the Bank Holiday, was held at Vincent Square on Wednesday and Thursday of this week. June-flowering bearded Irises were the feature of the exhibition, and some eight or nine firms contributed displays, many of which contained seedlings of outstanding quality. Hardy herbaceous plants, including Delphiniums, Papavers, Lupins, Pyrethrums, Heucheras, Aquilegias, etc., were also prominently shown. The first of the three Silver Cups presented by Mrs. Edward Harding, and offered for the best exhibit by an amateur, of three flowers each of six varieties of Paeonies was not competed for.

Orchid Committee.

Committee Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Gurney Wilson (Secretary), James O'Brien, H. T. Pitt, S. W. Flory, H. G. Alexander, Charles H. Curtis, John C. Cowan, Henry H. Smith, Stuart H. Low, and F. J. Hanbury.

Awards of Merit.

Cypripedium Godefroyae leucochilum, var. Edward Marshall. From Messrs. Sanders, St. Albans. A grand variety with flowers equal to those of C. bellatulum in size and with dark spotting. The broad segments are white, of wax-like texture and with dark maroon purple spotting, the upper sepal being the darker.

Odontioda Laura, Gerrish's variety (*Brewii × Coronation*). From R. Gerrish, Esq., Milford Manor, Salisbury (gr. Mr. Sorrell). The well-grown plant bore a fine spike of twelve flowers of a deep red colour, with a mauve-crimson lip which has a yellow crest.

Groups.

Messrs. Sanders, St. Albans, were awarded a Silver-Gilt Banksian Medal for a fine and artistically arranged group containing a varied selection of Laelio-Cattleya Canhamiana at the back, the most remarkable being L-C. Canhamiana Rosslyn variety, large, rosy-mauve flowers that have a deep crimson-purple lip. In the centre of the group was a fine specimen Brasso-Laelio-Cattleya Veitchii of the darkest type, with Brasso-Cattleyas and showy Laelio-Cattleyas. Of the Miltonias, M. Sanderae was the best white form with a nearly black mask, and in a varied selection of Odontoglossums was the new O. Black Watch, a rich blackish-purple flower with white margins and tips. The group was rich in species, among those noted being the rare and singular Catasetum cernuum with a large spike of greenish black-spotted flowers; Phaius Wallichii and P. assamicum, Luisia Psyche, various Dendrobiums and Coelogynes and a very pretty form of Eria convallarioides.

Messrs. Cowan and Co., Southgate, were awarded a Silver Banksian Medal for a pretty group containing a selection of their fine strain of Laelio-Cattleya Canhamiana and L. C. Aphrodite in great variety. In the centre of the exhibit was a fine example of Brasso-Laelio-Cattleya Jupiter var. Monarch, with flowers of fine size and shape; varieties of Miltonia Bleuana, of which the stately M. B. Reine Elizabeth with its large flowers heavily coloured with violet-purple on the petals, was the best; a good selection of Odontiodas and Odontoglossums was also included.

Messrs. Stuart Low and Co., Bush Hill Park, Enfield, and Jarvisbrook, Sussex, were awarded a Bronze Banksian Medal for an effective group in which Laelio-Cattleyas were well represented. It also contained some pretty forms of Odontoglossum ardentissimum with branched spikes of handsomely blotched flowers; Phalaenopsis amabilis Rimestadiana, with arched spikes of large pure white flowers and good specimens of Dendrobium thyrsiflorum.

Messrs. Charlesworth and Co., Haywards Heath, showed Odontonia Charlesworthii var. Rex, a very brightly coloured form with large flowers showing the spotting of Odontoglossum Uro-Skinneri very clearly, and Miltonia Regina (vexillaria Lyoth × Isabel Sander), a variety with showy, warm rose coloured flowers that have a purple mask on their lips.

Floral Committee.

Section A.—*Present:* Messrs. H. B. May (in the Chair), H. J. Jones, J. M. Bridgeford, Jas. B. Riding, W. Stephens, D. B. Crane, W. P. Thomson, Chas. E. Pearson, H. R Darlington, W. R. Dykes, Andrew Ireland, W. Howe, W. B. Gingell and W. D. Cartwright (Sec.)

Section B.—*Present:* Messrs. Gerald Loder (in the Chair), W. J. Bean, G. Reuthe, W. B. Cranfield. E. H. Wilding, C. Williams, F. G. Preston, A. Bedford, Amos Perry, R. W. Wallace, G. Yeld, T. Hay, Jas. Hudson and R. C. Notcutt.

Awards of Merit.

Cistus albidus, white form.—This is a pure white variety and is like the type in all respects except the purity of its colouring. Shown by Mr. O. G. Warburg, Boidier, Headley, Epsom.

Cytisus supranubius.—A strikingly distinct species, with long, more or less, terete growths which are clothed for a greater part of their length with closely set white flowers, which are short stalked and very fragrant. The buds are pinkish and we understand there is a variety with pink-tinged flowers. This handsome and graceful shrub is not often seen in gardens, but it is hardy in the South and is sometimes known under the name of C. fragrans. It is a native of the Canary Islands. Shown by Messrs. Robert Veitch and Son, Exeter.

Heuchera Argus.—A very pretty hybrid with graceful spikes of large, rose-pink flowers. The stems are stiff, slightly hairy and coloured red. Shown by Messrs. Maurice Prichard and Sons, Christchurch, Hants.

Hydrangea Elma.—This new variety was represented by a magnificent specimen carrying fourteen dense corymbs of rich rose-pink inflorescences. The segments are serrated and the conspicuous white calyx lobes lend additional beauty to the flower. Shown by Mr. H. J. Jones, Lewisham.

Iris chrosographes var. Epaulette.—A slender growing variety with somewhat small flowers of deep blue colour; the falls have a rich blue limb and a pale gold base with deep blue veining. Shown by Messrs. R. Wallace and Co.

Iris Dougraphes.—A hybrid Iris derived from I. Douglasiana crossed with I. chrysographes, portions of the names of the parents being used to provide the name of the progeny. The falls stand out horizontally and are of a deep bluish purple shade, with a golden base veined with deep blue; the small standards are blue-purple. Shown by Mr. Amos Perry.

Iris Forrestii.—A pretty and slender growing species about eighteen inches high. The flowers are of modest size and the foliage is grass-like, the standards are small, waved and yellow; the falls droop prettily and are soft yellow with golden base, the latter dotted with red-brown. Shown by Messrs. R. Wallace and Co.

Iris Souvenir de Madame Gaudichau.—A truly gorgeous bearded Iris with large, well proportioned flowers. The colour of the falls is deep velvety purple while the standards are a lighter shade of purplish blue. Shown by Messrs. R. W. Wallace and Co., Tunbridge Wells.

Iris Amber.—The deepest yellow flag Iris yet introduced, the falls and standards being of a rich yellow colour heightened by a golden yellow crest. It is evidently a very robust grower. Shown by Mr. W. R. Dykes.

Pyrethrum Princess Mary.—A sport from the popular variety Queen Mary, blooming earlier than that sort. The colour is rose purple and the flower is very full. Shown by Mr. J. W. Wilkinson, Wellington, near Bedford.

Pyrethrum Mrs. James Leake.—This variety is a seedling single flower of a bright shade of rose-pink, and possessing a bright yellow centre. The stem is long and stiff. Shown by Mr. J. Leake, Chilwell, Notts.

Rhododendron Philip Waterer.—A magnificent late flowering Rhododendron with large heads of bright rose-pink flowers, the individual blooms measuring nearly five inches across. The popular variety Pink Pearl was one of the parents. Shown by Messrs Waterer, Sons and Crisp, Ltd., Bagshot, Surrey.

Trollius Ledebourei Golden Queen.—A semi-double large flower with the sepals of a rich golden yellow. The narrowly linear petals are of the same colour, and are very conspicuous. Shown by Messrs. B. Ladhams, Ltd., Shirley, Southampton.

Groups.

A magnificent collection of Irises was staged by Messrs. George Bunyard and Co., Ltd., who included fine specimens of Magnifica, a French variety, with large bold flowers, the standards being light violet-blue, and the falls violet; Dominion, with mammoth deep purple falls and bluish-violet standards; Swazi, a variety similar to the foregoing; Ambassadeur, a large bold reddish-violet flower; Duke of Bedford, a very striking flower of violet-purple colour; Asia, violet-purple falls, the edges being of a lighter hue; and Sunset, a bronze-yellow shade and very beautiful; this variety received an Award of Merit in 1922 under the name of I. ochracea coerulea. Close by The Orpington Nurseries Company exhibited a very fine collection, rich in new varieties, some of French origin, and others raised by the English hybridists, Mr. Bliss and Mr. Dykes. Of the eighty or so varieties staged a few of the most outstanding were Corrida, a charming flower of pale blue colour; Titan, evidently a very vigorous variety with large branching spikes of deep, violet-purple flowers; Gabriel, undoubtedly one of the gems of the race with lavender blue standards; Tenebrae, rich violet-purple; Majestic, another mammoth flower of deep plum-purple colour; Ariadne, a striking shade blue; Lulworth, blue and violet-purple; Aphrodite, one of the best of violet-pink coloured varieties; and Shekinah, a very tall growing variety with pale yellow flowers.

In a corner of the Hall, Messrs. R. W. Wallace and Co. relieved their group of Irises with stately spikes of Eremurus robusta and its paler form E. r. Himbrob, and E. Bungei pallidus, with sulphur-yellow flowers. Of Irises there was an abundance of beautiful things, including Lord of June, Lent A. Williamson, both large flowers of pleasing shades of blue and violet; Souvenir de Mme. Gandichau, deep purple, Leonato, a huge bloom of pale heliotrope colour; Duke of Bedford, with large deep velvety purple falls; and Pioneer, a striking deep reddish purple bloom. Large numbers of very promising seedlings flowering for the first time were also included in the group, together with some exceptionally good Iris sibirica varieties, and Speed, a fine deep blue flower of I. trojana type.

Mr. Amos Perry was represented by a very beautiful selection, all of the varieties being of his own raising. These included, amongst others, Eden Philpotts, dark blue; Mary Gibson, a charming colour of combined shades of purple and bronze, and Mrs. Perry, a remarkable white variety with the falls blotched with pale blue. The numerous species and hybrids attracted considerable attention and among the many beautiful hybrids were the crosses obtained between the Chinese species I. chrysographes and I. Bulleyana, I. Wilsonii and I. Forrestii, all of dainty colourings and form. There were also hybrids between the Californian species I. Douglasiana, I. bracteata, I. tenax, and I. Watsoniana, while a hybrid between I. chrysographes and I. Douglasiana was of considerable merit the colour being a rich violet-blue with conspicuous yellow markings on the falls. In the group was also a very pretty dwarf variety of Oriental Poppy named Thelma Perry. The height of the plant is only 18 inches; the colour of the dainty flowers is bright scarlet-pink deepening to crimson at the base of the petals.

Messrs. Barr and Sons filled a double length of tabling with a large selection of Irises interspersed with ornamental Maples. Prominence was given to such excellent varieties as Peter Barr, violet and blue; Her Majesty, a lovely Pallida form with rosy lilac-pink flowers; Prosper Laugier, violet purple; Magnifica, rich violet with brown reticulations; Edward Michel, a well-proportioned flower of deep reddish-violet colour; and Eldorado, a glorious combination of violet purple and bronze.

A neat display was also provided by Messrs. Waterer, Sons, and Crisp, Ltd., who showed some three dozen distinct varieties, chief of which were Ambassadeur, Lord of June, Asia, Mrs. H. Darwin, Ballerine, violet blue, a grand flower; Dalila, reddish purple falls and pale lilac standards; and Neptune, with large deep-blue flowers. The same firm also showed some very choice late-flowering Rhododendrons in another part of the Hall. This group included two exceptionally fine standard specimens of the variety Gomer Waterer, possessing large trusses of blush-white flowers slightly marked with a yellow blotch on the upper petals. Other varieties were Diphole Pink, a glowing shade of pink suffused with mauve; Freak, with quaintly crested pink petals; Donald Waterer, a pink edged variety; Eileen, a white flower edged with mauve; Joseph Waterer, one of the darkest varieties being of a deep maroon shade; and Philip Waterer, a huge flower representing a new strain of late flowering varieties and although Pink Pearl was one of its parents it flowers three weeks later than that variety. The colour is rose-pink, and the trusses are very large.

Seedling Irises as yet unnamed of great merit were shown in the collection staged by Mr. George G. Whitelegg, who also included magnificent vases of Alcazar, bronze-violet; Ambassadeur, Lord of June, Eldorado, Edward Michel, Asia, Crepuscule, violet-blue self of good form and texture, and Halo, a large flower of bluish-violet colour. Messrs. Lowe and Gibson brought a collection of Irises of which a few of the best were Lord of June, Glitter, golden-yellow and reddish-brown, and Romany, with dull yellow standards and purplish-red falls.

A very pleasing group of Delphiniums, noteworthy for their huge spikes, was exhibited by Messrs. Blackmore and Langdon. The choicest varieties were Sir Douglas Haig, the finest of the dark coloured sorts; Millicent Blackmore, mauve and blue with dark centre; Constance, Gentian-blue with clear white "eye"; The Shah, a very large spike with deep lavender flowers; and George Cochrane, violet and blue. Magnificent strains of Lupins and Aquilegias, together with a representative collection of Pyrethrums were also included in this very excellent group.

Messrs. Andrew Ireland and Hitchcock arranged an effective group of their new Dianthus Mascott. The bright salmon-cerise colour, the neat habit of growth, and freedom of flowering warrants it a place in every garden; it will also doubtless prove a commercial flower of high standard. Messrs. Allwood Bros. provided a charming group of Malmaison and perpetual-flowering Carnations, Dianthus Allwoodii in variety, and perpetual border Carnations. In the last named section were Sussex Avondale, a well formed flower possessing the true Clove perfume and of bright salmon-pink colour; Sussex Beauty, heliotrope; Sussex Bizarre, salmon-pink striped heliotrope; Sussex Scarlet, of intense colour; and Sussex Rosalind, yellow ground marked with scarlet lines.

In the centre of the Hall Messrs. Sutton and Sons made a very attractive display of their long-spurred strain of Aquilegias. The exhibit took the form of a large circular mound arranged on the floor, the plants being artistically grouped so that their habit of growth and dainty colourings were seen to the best advantage.

Mr. G. R. Downer showed splendid varieties of Lupinus polyphyllus including the richly coloured Downer's Delight, deep red; Nublu, blue; Chocolate, purplish-blue; Tunic, a pleasing combination of pink and white and Rear Guard, pink. Mr. H. Marcham also staged an imposing display of Lupins of the leading English and Continental varieties.

Messrs. Harkness and Sons set up a display of named varieties of Lupins, among which were Mary Harrison, blue; Enchantment, apricot-buff; Firefly, rose-mauve; Brightest and Best, red, and Salmon Queen, salmon-pink. Messrs. B. Ladhams, Ltd., had a bright exhibit of herbaceous plants including the new Trollius Ledebouri, Golden Queen.

Messrs. James Kelway and Sons, Ltd. showed Pyrethrums and Paeonies, and among the latter were Mrs. Beerholm Tree, white; Major Loder, rose-purple with yellow centre; Pink Pearl, pale pink; Lady Ley, soft rose-pink and Letitia, bright rose.

The single Paeonia albiflora grandiflora, white, and P. a. carnea, pink were shown in quantity by Mr. F. Gifford, and from Messrs. J. Cheal and Sons, Ltd., came a group of Dahlias, the Star, Collerette, Decorative and Paeony-flowered sections being well represented.

Delphiniums and Aquilegias were staged by Mr. H. Vigers, and groups of Alpine plants were represented by good collections from Messrs. Maxwell and Beale; Messrs. Gavin Jones and Ingwerson; Mr. G. Reuthe. Mr F. G. Wood and Messrs. Carter Page and Co., Ltd., Capt. Symonds-Jeune constructed a dainty Alpine scene representing an Alpine meadow rich in its flora and backed with boulders of stones overhanging which were huge spikes of Saxifraga Tumbling Waters.

Messrs. R. H. Bath, Ltd., included bearded and Dutch Irises in their collection of hardy plants: other subjects shown in this group were Gladioli, Trolliuses, Oriental Poppies and Pyrethrums in variety while other exhibitors of miscellaneous hardy herbaceous plants were Messrs. Maurice Prichard and Sons, with a very choice collection including the new Heucheras Eden and Argus; Messrs. Rich and Co., who displayed fine vases of Chrysanthemum Rentpayer; Mr. W. Wells, Junr. with Lupins, Pyrethrums, and Papavers of extra good quality. Magnificent specimens of Hydrangea Hortensia were staged by Mr. H. J. Jones and among this comprehensive display were finely grown plants of Kriemhilda, deep pink, Vicomte de Vibraye, blue; Madame Mouillere, white; Parsival, deep pink; Radiant, pale rose-pink; and Elmar, bright pink with neatly serrated segments. Messrs. Stuart Low and Co. staged a collection of greenhouse flowering plants, Carnations and Roses. The first named section contained beautiful specimens of Dipladenia amabilis, rose; Bougainvlllea Mrs. Butt, rose-purple; Calceolaria Allardii, bright yellow; Boronia elatior, purple; Erica grandiflora, rose-pink; E. magnifica, pale pink; E. ventricosa, yellow; and E. perspicua nana.

Just inside the entrance E. H. Watson, Esq. (gr. Mr. Shambrook), The Priory, Mill Hill, arranged an artistic circular group, the feature of which was the salmon-scarlet flowered Kalanchoe flammea, Strobilanthus Dyeriana, with rich purple foliage; greenhouse Ferns and Selaginellas were also exhibited.

A small group of Carnations, which included the varieties Laddie, Benora, Saffron, White Wonder and Cupid, was staged by Mr. C. Engelmann, and a group of well-flowered specimens, growing in pots, of the perpetual border Carnations, Pink Froyle and Apricot Froyle was shown by Mrs. Sommers (gr. Mr. Brundall), Froyle Place, Alton.

The only display of Sweet Peas was staged by Messrs. R. Bolton and Son, who showed vases and epergnes of Mammoth, with rich tangerine-scarlet standards and the wings flushed with mauve; Daffodil, deep cream; Wembley, bright lavender; Supreme, pink; Angele, mauve standards and blue wings; and Wizard, bright salmon-scarlet.

Roses were shown by Mr. George Prince and the Rev. J. H. Pemberton; the first-named exhibitor prominently displayed the new climbing Rose Allen Chandler, a semi-double variety of deep carmine-red colour and sweetly perfumed, while in the Rev. Pemberton's group were good vases of Corrie Koster, a salmon-pink Polyantha Rose; Star of Persia, a yellow rambler; Nur Mahal, rose-purple, and Aurora, yellow—two fragrant hybrid Musk Roses.

Gold Medal.—To Messrs. G. Bunyard and Co., Maidstone.

Silver-Gilt Banksian.—To Messrs. Barr and Sons, Covent Garden; to Mr H. J. Jones, Lewisham.

Silver Banksian.—To Messrs. Ladhams, Southampton; to Messrs. M. Prichard and Sons, Christchurch; to Mr. G. Reuthe, Keston; to Capt. B Symonds-Jeune, Hill St., S.W.; to Messrs. Allwood Brothers, Haywards Heath; to Messrs. R. H. Bath, Wisbech; to Messrs. Blackmore and Langdon, Bath; to Mr. Downer, Chichester; to Messrs. Ireland and Hitchcock, Marks Tey; to Messrs. S. Low and Co., Enfield; to Mr. W. Marcham, Borough Green; to The Orpington Nurseries, Orpington; to Mr. George Prince, Oxford; to Messrs. Sutton and Sons, Reading; to Messrs. R. Wallace and Co., Tunbridge Wells; to Messrs. Waterer, Sons and Crisp, Twyford; to Mr. W. Wells, Jnr., Mertsham; and to Mr. G. Whitelegg, Chislehurst.

Bronze Banksian—To Messrs. Maxwell and Beale, Broadstone; to Messrs. Carter Page and Co., London Wall; to Messrs. Waterer, Sons, and Crisp, Twyford; to Mr. F. G. Wood, Ashstead; to Messrs. Jones and Ingwerson, Letchworth; to Mr. C. Engelmann, Saffron Walden; to Messrs. Harkness and Sons, Bedale; to Messrs Kelway and Son, Langport; and Messrs. Low and Gibson, Crawley Down; to Rev. J. H. Pemberton, Havering; to Mr. Amos Perry, Enfield; to Mrs. Sommers, Froyle Place, Alton; to C. H. Watson, Esq., The Priory, Mill Hill.

Fruit and Vegetable Committee.

Present: Messrs. J. Cheal (in the chair), W. G. Lobjoit, Geo. F. Tinley, W. F Giles, G. Reynolds, E. Neal, F. Jordan, W. Bates, W. H. Divers, and A. N. Rawes.

The only exhibit was a collection of forty dishes of Apples and Pears staged by the New Zealand Fruit Growers' Federation. By far the finest fruits were those of Winter Nelis Pears; they were large, of splendid appearance generally, and of exquisite flavour. The best Apples were Cornish Aromatic, Sturmer Pippin, Delicious, and Jonatham.

KEW GUILD.

The Annual General Meeting of the members of the Kew Guild was held at the Imperial Hotel, Russell Square, on Wednesday, May 28, and following the annual meeting the usual dinner was held in the same building. The Assistant Director, Major Chipp, presided at the annual meeting, and the principal business centred around a proposition to raise a fund for assisting young gardeners at Kew to acquire such education as would fit them to compete with others for the more important colonial posts. A resolution to this effect was proposed by Mr. J. Coutts, seconded by Mr. W. Hales, but the original proposition was, after discussion, amended, and a new resolution submitted, as follows: "That with a view to ascertaining definitely the possibilities, if any, that exist in a Kew Guild Educational Scheme, this Annual General Meeting appoints a Sub-committee of five, two present and three past Kewites. This Sub-Committee, in consultation with the Guild Committee, shall present to the next Annual General Meeting such scheme or schemes as may appear possible, and in this connection the Sub-Committee shall ascertain the sum of money likely to be able to be raised, the sum to be aimed at being £1,000." Mr. Hales, in seconding the resolution, stated that Kew men, who have a knowledge unsurpassed in their profession, are often unable to secure the higher posts abroad because they lack the little additional education that carries the University men to the best positions. They could, in his opinion, easily raise a sufficient sum of money to enable Kew men to take a degree by means of such an institute as the South-western Polytechnic. It was pointed out by several speakers that the Government already had a scheme of scholarship, but Mr. Hales stated that the majority of Kew men were ineligible for these scholarships, and he considered that if the Kew Guild raised a reasonable sum they could ask the Ministry of Agriculture or the Educational authorities to make grants.

Miss Joshua pointed out that at Swanley the Board of Agriculture made a £1 grant for every £1 raised by the college and there was every likelihood that the Board would do the same in such a scheme as proposed. Several members expressed their willingness to contribute a sum of £5 each for four years and it was pointed out that the sum of £61 handed over by the Uganda branch of the Guild might be applied to such an educational scheme. It was eventually decided to leave the matter in the hands of the Committee of five, and Messrs. J. G. Murray, W. W. Pettigrew and R. C. Gant were appointed representatives of past Kewites whilst the two others will be selected by the present Kewites.

The annual report, which was taken as read, showed that the receipts for the year amounted to £139 18s. 3½d. and the expenditure to £167 11s. 5½d. The increase in expenditure arose from two journals having to be printed in the one year. Mr. J. Coutts was re-appointed hon. treasurer, and Mr. E. G. Dunk, secretary and editor.

The Annual Dinner, at which 144 were present, was a great success. Mr. Morley T. Dawe presided. The gathering was the largest of its kind in the history of the Guild. A most enjoyable evening was spent and old acquaintances were renewed and fresh ones made.

The toasts included "The Kew Guild," proposed by the Chairman, who at the outset of his remarks read a letter from Dr. Hemsley, the oldest member of the Guild, wishing success to the gathering. Mr. Dawe stated that in this year when the Empire was so largely before the public it must be remembered that Kew and her sons had contributed in no small degree to its development. During the twenty-two years that he had left Kew he had seen a good deal of important work that Kew men had accomplished in different parts of the world, for Kew turned out efficiently trained men suitable for agricultural and forestry work in the tropics, but they now found great competition for the higher posts in men with University degrees, but as one with a wide knowledge of affairs he was assured that no university or college could take the place of Kew as a training ground for such pioneer work as they had accomplished.

Mr. W. Norman Sands, who has served for many years in the West Indies and is now Assistant Economic Botanist, Federated Malay States, responded to the toast and stated that he had met many Kew men abroad doing excellent work, and he pointed to one case, that of 2,340,000 acres under Para rubber in the Malay States, which was due to an old Kewite, Mr. Wickham, who introduced Rubber plants to the east. He was glad to know that the *Journal* was maintained in the same high state of excellence as in the past and congratulated Kew on the splendid gathering of its sons at that dinner in the "Empire year of grace"—1924.

The health of the President, Mr. M. T. Dawes, was proposed by Dr. Hill, Director of Kew, and was accorded musical honours.

THE ORCHID CLUB.

THE first Annual Meeting of the Orchid Club was held at Manchester on June 6. The following officers for the session 1924-5 were elected:—President, Sir George Holford, K.C.V.O.; Vice-Presidents, Mr. George F. Moore, Hon. H. D. McLaren, Sir William Thom, Dr. F. Craven Moore; Hon. Treasurer, Mr. J. H. Walker; Hon. Secretary, Mr. B. J. Beckton. Mr. A. T. Cussons, Dr. R. N. Hartley, and Messrs. W. Morton Jackson and F. T. Paul, F.R.C.S., were appointed members of the Committee.

Arrangements were concluded to hold meetings on the following dates. October 10, November 14 and December 12, 1924; January 16, February 13, March 13, and May 8, in Manchester, and October 21 and April (date not fixed) in London. In the Annual Report sympathetic reference was made to the serious loss which the Club had sustained by the death of Mr. Fred Hardy the first President.

AWARDS.

PREMIER DIPLOMAS.

Odontoglossum crispum var. Diana. From Dr. F. CRAVEN MOORE. A magnificent example of one of the finest of the imported crispums still in cultivation. The flower is 4¼ inches across the petals and of excellent shape, the petals being deeply serrated; it is wholly pure white except for a yellow flush on the centre of the lip. The plant carried a spike of six flowers.

Cypripedium bellatulum exhims var. From F. T. PAUL, Esq., F.R.C.S., Caldy. An exceedingly fine, dark coloured variety. The plant bore a twin-flowered spike. The blooms, which measured three inches across the petals, are of good shape and well displayed, the colour of the whole flower is creamy white thickly spotted with rich crimson, the spots on the broad petals being so thickly set as to give an impression of solid colour.

GROUPS.

J. H. WALKER, Esq., Eccles (gr. Mr. G. Weaver), staged a magnificent group consisting of 75 well-flowered and artistically arranged Miltonias.

Dr. F. CRAVEN MOORE (gr. Mr. C. Branch), exhibited a small group of Odontoglossums and Odontiodas.

Sir WILLIAM THOM, Blackburn (gr. Mr. R. Williams), showed a small group of Odontoglossums.

F. T. PAUL, Esq., Caldy, staged a small group of exceedingly well-grown and well-flowered Cypripediums of the Bellatulum section.

Dr. R. N. Hartley, Pemberton, staged a fine example of the scarce Dendrobium Deari.

B. J. BECKTON, Esq., Irlams o' th' Height (gr. Mr. W. A. Stewart), showed Dendrobium asperifolium, Oncidium Harrisonianum, the beautiful Masdevallia Chamberlainiana, and others.

READING AND DISTRICT GARDENERS'

FAVOURED with splendid weather conditions, between fifty and sixty members of the Reading and District Gardeners' Association spent a very enjoyable and educational evening in the pleasure grounds and gardens of Sherfield Manor, near Basingstoke, by the kind invitation of Mrs. J. Liddell, on Thursday, June 5. The object of the visit was principally to inspect the flowering trees and shrubs. The party was met by Mr. A. O. Smith, the gardener, and members of his staff. Large clumps of Rhododendrons presented a blaze of colour, and the specimen trees which came under particular notice were weeping Poplars, golden Elms, blue Cedars (Cedrus atlantica glauca) and the Guelder Roses (Viburnum Opulus). The glass houses were visited, the centre one being occupied by Hydrangeas, Pelargoniums, Canterbury Bells, Coreopsis, and the Bottle Brush Tree (Callistemon speciosus), and another house was filled with Carnations carrying a very large quantity of flowers. Other houses are devoted to Melons and Cucumbers. The rockery proved exceedingly interesting, many of the plants being in full flower. The members were kindly provided with light refreshments by Mrs. Liddell, who said that the second visit of the Society to Sherfield had afforded her much pleasure.

THE TRINIDAD HORTICULTURAL CLUB SHOW.

THE Horticultural Club of Trinidad, British West Indies, held its annual show at the St. Clair Experiment Station on May 8. There was a large attendance of members and friends including His Excellency the Governor, patron of the Club, and Sir Francis Watts, D.Sc., K.C.M.G., Principal of the Imperial College of Tropical Agriculture.

Amongst the members' classes the one for flowering plants was well represented and good specimens of Amaryllis, Asters, Zonal Pelargoniums, Begonias, Saintpaulias and Verbenas were shown. Two plants of Azalea indica, grown from recently introduced plants, were exhibited.

In the section devoted to Ferns some very fine specimens of Gymnogramme sulphureum and Adiantum Farleyense were noticed. Both these Ferns grow remarkably well in Trinidad. Orchids were not so well represented as usual although the individual plants were good. Phalaenopsis, Cattleyas and Epidendrums were most in evidence, these being either grown in baskets or fastened to blocks of hard wood.

Caladiums were the principal feature in the class for foliage plants and some pretty varieties were shown. The cut flower section was not so well filled as last year, due, no doubt, to the very dry weather experienced for the past three months.

A novel system of awarding prizes at this show and which has now been adopted for two years with marked success, is the system of judging by popular ballot. All exhibits bear a number and members are handed ruled ballot cards on which they enter the numbers of the entries they consider deserving of first and second prizes respectively in each class. Prizes are then awarded on the majority vote. This system proves very attractive to members, who take considerable interest in marking their cards, besides creating an additional interest in the show.

In addition to the members' classes there were a number of special exhibits, principal amongst which was an exhibit of fruit staged by the management of the Goverment Fruit Depôt, an institution established in Port of Spain about eighteen months ago for the purpose of encouraging the fruit industry. This exhibit comprised Pineapples, Mangos (grafted) of the varieties Julie, Peters and No. 11; Melons, Papaw, Grape Fruit, Shaddock, Tomatos, Cashew, Balata, Melongene, etc.

Fine groups of flowering and foliage plants were staged by the Royal Botanic Gardens, also a group of Vanda teres and Ferns. The Forestry Department had an interesting exhibit of the lesser known woods of the Colony and a large series of economic products were shown by General Ducharme, all of which were derived from his concession of land in Venezuela.

The Horticultural Club of Trinidad has now been in existence ten years. It has a membership of over 200 and holds monthly meetings for the discussion of horticultural subjects. The annual show is held in May. Included in its activities are the importation of plants and seeds for members and a small horticultural library. *R. Williams, Trinidad.*

ROYAL CALEDONIAN HORTICULTURAL.

The June meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on June 3rd, Mr. Robert Fife, president, in the chair.

A paper entitled "The Rock Garden from January to June," was read by Mr. William Austin, of Messrs. Cunningham, Fraser and Co., Edinburgh. In reply to a question as to the best kind of stone for the construction of a rockery, Mr. Austin stated that the only kind of stone he had found beneficial to alpine plants was limestone, and he gave as a proof of this the fact that if two plants of the same kind were grown in pots, one wedged between pieces of limestone and the other without it, the former made the better growth.

The exhibits were:—Tulips, &c., from Messrs. Dobbie and Co., Ltd. (silver medal); Tulips from Messrs. Wm. Thomson and Co., Edinburgh (award of merit); collection of alpine plants from Messrs. Cunningham, Fraser and Co.

Mr. A. D. Richardson referred to the the prominence which had been given recently in the horticultural Press to a proposal which was to be submitted to the Council of the Royal Horticultural Society by the Councils of the Royal Caledonian Horticultural Society and several of the Scottish provincial societies to set up trial grounds in Scotland, and he wished to know if the Council of the Royal Caledonian Society had received any request to have such trial grounds instituted, and by whom they were to be financed. He pointed out that when it was instituted, over one hundred years ago, the principal work of the Caledonian Society was of this nature, but owing to financial stress it had to be abandoned. Now the Scottish national horticultural society, along with some of the provincial societies, was inviting the national horticultural society of England to come into Scotland and do work which the Scottish national and provincial societies were unable to undertake, and over which they have no control whatever. He considered that such an arrangement would place the national society of Scotland in a most humiliating position, and as he maintained that this was not merely a matter of administration of the affairs of the Society, but a question of external policy, the Council had exceeded their powers in committing the Society to the proposed scheme without a mandate from the members; he therefore gave notice that if the proposed arrangement was carried out he would raise the question at the annual meeting. In reply to the questions, the chairman stated that no request had been received by the Council, and that the financing of the proposed scheme would have to be undertaken by the Royal Horticultural Society.

TRADE NOTE.

We have received from the makers a sample of a new fertiliser known as Plantora, said to be a highly soluble manure, and recommended, in solution, as a substitute for liquid manure. It is said to contain as much as 94 per cent. of soluble plant-food, and it is claimed by the makers that leaves of flowers may be freely watered with Plantora without injuring them in the slightest. Other advantages claimed for this fertilizer are that it is colourless in solution, has no smell, is dry, clean and non-poisonous.

Obituary.

Henry Nevard.—The death of Mr. Henry Nevard, aged sixty-nine, of Bergholt Road, Colchester, occurred (following a stroke) on Thursday, May 22. Mr. Nevard was foreman to Messrs. Frank Cant and Co., Braiswick, with whom he had been associated for thirty-seven years. He was one of the old-school of Rose Growers, a great enthusiast and had a thorough knowledge of the old as well as the modern varieties of Roses. He was well-known to many professional and amateur exhibitors, and very highly esteemed and respected by all who knew him. The deceased leaves a widow and a large family. The funeral took place at Myland Church and there was an extraordinary large number of beautiful wreaths and flowers sent by his fellow workers and the numerous friends by whom he was much respected and loved.

ANSWERS TO CORRESPONDENTS.

Cucumber Fruits Failing: *H. G. P.* The trouble may have arisen from one or several causes. If eelworm is present in the soil this would be responsible, but only those on the spot, who have a knowledge of the treatment the plants have received could offer an opinion.

Cucumbers Diseased: *J. S. D.* Your Cucumber plants are attacked by the collar rot disease, caused by Bacillus carotovorus. The plants should be kept dry at the collar, for which reason it is best to plant both Melons and Cucumbers on ridges of soil. Diseased plants that have not gone too far may be checked by dusting the bases of the plants with a mixture of lime, copper sulphate, and sulphur at the rate of ten parts of slaked lime, two or three parts of finely ground copper sulphate, and two or three parts of flowers of sulphur; this mixture may be applied by sprinkling with the hand.

Employment at the Royal Gardens, Kew: *Ambitious.* For employment at Kew you should apply to the Director, Royal Botanic Gardens, Kew, Surrey, who will send you particulars and form of application. At present student gardeners receive 25s. per week, plus 20s. per week bonus; a sub-foreman receives 27s. per week in addition to 21s. per week bonus. Overtime duty is paid for at the rate of 1s. 4d. per hour, and Sunday duty 1s. 7d. per hour. The cost for board and lodging varies considerably, but may be placed approximately at 30s.

Flowers for a Leeds Slum Garden: *Sister A.* Whilst there are a good many herbaceous plants which can be grown in a Leeds slum garden if the gardener is prepared to plant every year, or at least every two years, there are comparatively few that will persist in living in such surroundings. These are Doronicum austriacum, Aconitum Napellus, Lupinus polyphyllus in variety, Artemisia lactiflora, Spiraea Aruncus, Helianthus rigidus (not the variety Miss Mellish), Phalaris arundinacea variegata (variegated grass), Campanula persicaefolia and its variety alba, Anemone japonica in all varieties, and Pyrethrum roseum in variety. German Irises and Montbretias will do moderately well. These may be used to give height and variety to the flower border and be looked upon as permanent plants. The best low-growing subjects suitable for edgings are the common Thrift, mossy Saxifrages, London Pride, and the single and double forms of Arabis albida. You should rely on bulbs, chiefly Daffodils, for spring effects, as it is but rarely that Wallflowers and Forget-me-nots withstand the winter sufficiently well to make them worth planting. For a summer display fill in gaps with Snapdragons and some of the hardiest annuals, of which seed may be sown now; Virginian Stocks, Candytuft, Godetias, Eschscholzias, and pot Marigolds are some of the best of these. If you have a sunny wall you may cover it by sowing climbing Nasturtiums at the foot and even Canary Creeper, which latter does not take harm when grown against a wall as it does elswhere. Above all, remember that, largely owing to deposits from smoke fumes, the soil is sure to be acid and an application of ground chalk at the rate of half-a-pound per square yard for the first year and quarter-of-a-pound per square yard in each succeeding year, should be part of the regular cultural routine. You must not expect the colours of your flowers to be equal to those grown, say, in Roundhay Park, for the smoke fumes have definite bleach-effects, and blues particularly become very washy.

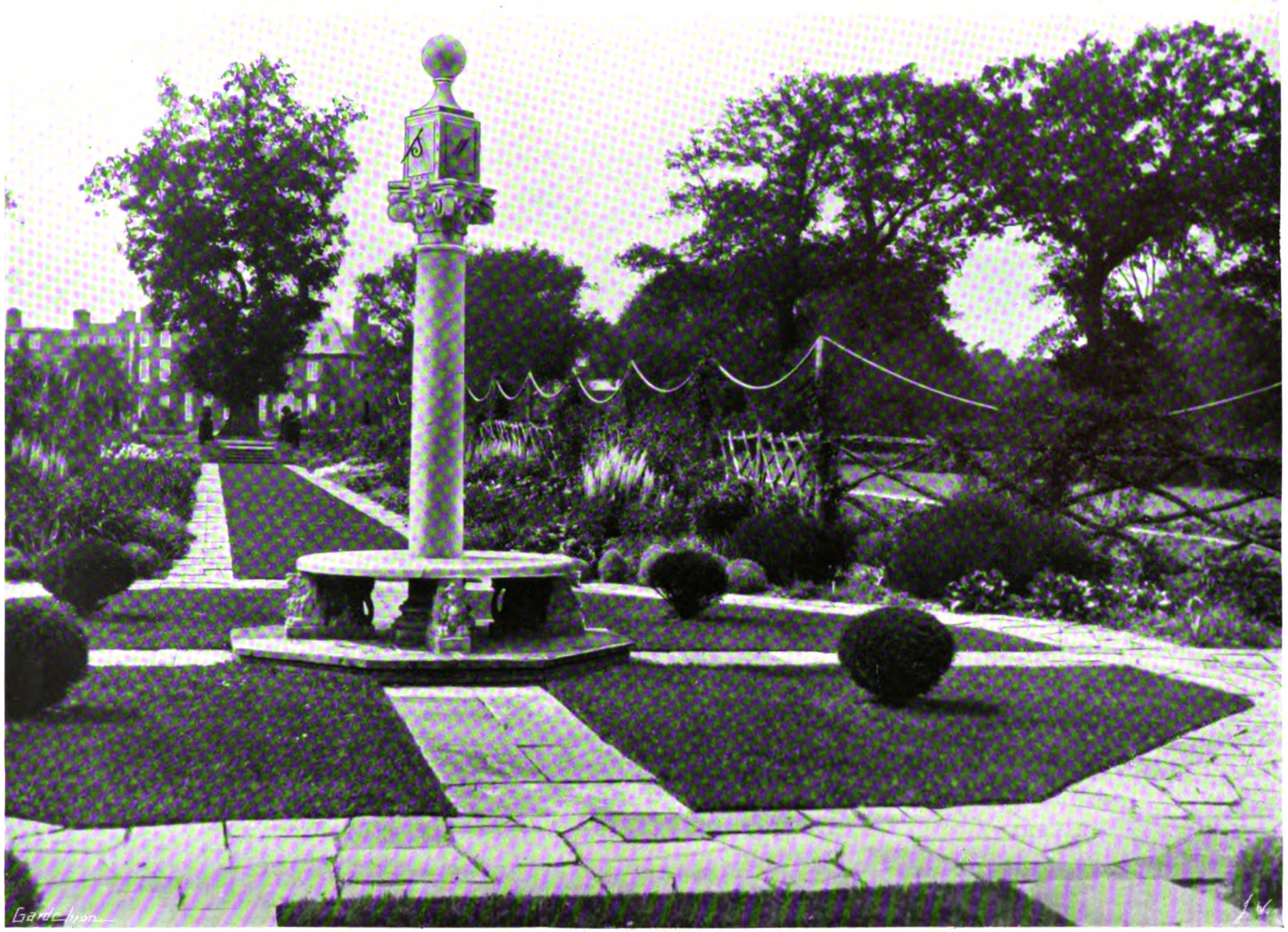
Names of Plants: *H. W.* Athyrium Felix-foemina var. Victoriae. *G. S.* 1, Pyrus Aria; 2, Prunus Padus. *M. E.* 1, Arbutus Unedo; 2, Euonymus europaeus; 3, E. Thunbergianus *B. F. D.* 1, Arbutus Unedo; 2, Viburnum Opulus var. sterile; 4, Veronica Traversii; 5, Cotoneaster Simonsii; 6, Spiraea confusa; 7, S. Douglasii; 8, Veronica augustifolia; 9, Cotoneaster frigida; 10, Spiraea japonica; 12, Neillia opulifolia var. aurea; 13, Lonicera tatarica; 14, Berberis vulgaris; 15, Deutzia crenata; 17, Symphoricarpus orbiculatus; 18, Deutzia discolor; 19, Diervilla florida var.; 20, Forsythia intermedia; 21, Spiraea Margaritae. The numbers omitted were so blurred that we could not decipher them. *W. A. X.* 1, Chlorophytum elatum var. variegatum; 2, Sedum spectabile; 3, Billbergia nutans; 4, Tritonia crocata; 5, probably a Cordyline species; specimen too scrappy for correct determination; 6, probably Dactylis glomerata var. variegata.

Palm Leaf Turning Brown: *I. F.* The trouble is not due to organic disease, but some wrong cultural treatment, most probably inattention to watering. Either an excess or deficiency of water at the roots would cause the foliage to turn brown, or excessive cold may be responsible.

Peach Mildew: *W. Y. and P. C.* The specimens sent are affected with Peach mildew. When first detected the leaves should be dusted with flowers of sulphur whilst they are damp, or, if the attack is serious, the water pipes should be painted with sulphur when they have been made very hot, closing the house for an hour or two afterwards, and performing the operation at dusk. Mildew is usually brought about by dryness at the roots and a damp atmosphere insufficiently heated.

Vine Mildew: *A. G.* This disease is very common on vine leaves especially during a dull, wet spring such as we have experienced. Sulphur, either in the form of flowers of sulphur, is generally recommended to control this disease. In applying the sulphur it is necessary to make several applications, the first being applied about a fortnight before the flowers open, and the second when in full bloom. Other applications should be made when the fruit is set at intervals of three weeks or a month. It is important to apply the sulphur when the temperature of the vinery is between 80°—100° F. as in this temperature the fumes which quickly destroy the fungus are given off. Excellent results may also be obtained by spraying with a solution made by dissolving a half-ounce of potassium sulphide (liver of sulphur) in one gallon of water.

Communications Received.—H. E. K.—D. G. H.—G. R. S.—E. G. H.—G. K. P.—J. B.—O. O.—W. K.—J. J.—H. G. G.—M. I.



SUNDIAL AND HERBACEOUS BORDERS AT WALHAMPTON, LYMINGTON, HAMPSHIRE.

THE
Gardeners' Chronicle
No. 1956—SATURDAY, JUNE 21, 1924.

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SUPPLEMENTARY PLATE.

View in the gardens at Walhampton, Hampshire.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 61·5.

ACTUAL TEMPERATURE:—
Gardeners' Chronicle Office, 5, Tavistock Street Covent Garden, London. Wednesday, June 18 10 a.m.: Bar 30′: temp. 65°. Weather, Fine.

Plants with Insecticidal Properties.

WITH the thoroughness which characterises their work the United States Department of Agriculture have made an experimental survey of the insecticidal properties of the chief plants which have been claimed to be more or less toxic to insects.* The results, which are due to the labours of Messrs. N. E. McIndoo and A. F. Sievers, provide a valuable and succinct body of knowledge which will be of great help to subsequent seekers for new kinds of plant insecticides. Altogether there appear to be some two hundred and sixty-seven species of plants, the constituents of which are in greater or less degree toxic to insects. The curious will find many interesting facts in the notes which accompany the authors' list of plant insecticides. Thus, bedsteads made of the wood of Aesculus Pavia are said never to harbour vermin. The fungi, Amanita muscaria (Fly Agaric), and A. pantherina, a Javanese species, are effective fly poisons, the former having been used in Europe for this purpose for hundreds of years. The crushed tops of the Broom, Cytisus scoparius, are good for killing the larvae of the Cabbage Butterfly, and the branches of Eucalyptus Globulus will drive mosquitos away from a room. In Texas the latex of Euphorbia marginata and E. bicolor is occasionally used to brand cattle, because the wounds heal better than those made with branding irons. The authors give impartially these and many other scattered observations and assertions made by previous investigators, but the chief value of their work lies in the fact that they have tested all likely plants among insecticides and are therefore in a position to say definitely which among them are likely to be of practical use in the control of insect pests. They find that only about five per cent.—some twelve plants in all—possess insecticidal properties to such an extent as to make them of any great value. Of this number three, viz., Chrysanthemum cinerariaefolium, C. coccineum, and C. Marschallii, are used for making Pyrethrum or insect powder. The authors' tests indicate that this well-known specific when used as a dust proved to be effective against five species of aphis and also against flies and certain other insects. Other powders which showed some measure of efficiency are Derris (Derris elliptica and D. uliginosa), which kills aphis and also fleas on dogs. Extracts of either "Pyrethrum" or Derris promise to prove effective contact insecticides and are likely to compete favourably as to efficiency and cost with nicotine sulphate. The idea, however, that somewhere or other among plants are to be discovered more potent insecticidal substances may be dismissed once for all, although it should be admitted that the authors are not without hope that possibly among the fish poisons used in tropical and sub-tropical countries other useful insecticides may be found. Pending these discoveries, however, we would recommend all who read this account and have fruit orchards under their charge not to neglect spraying as soon as blossoms fall with an all-round fungicidal and insecticidal mixture. The inclement spring has made it certain that, in many districts at all events, the fruit crop will be light. It is particularly in such a season as the present that spraying is likely to prove a good investment. The *Bulletin* concludes with a list of the publications cited and a useful index of botanical and common names of the plants referred to.

Netherlands Chrysanthemum Club.—The schedule of the great Chrysanthemum exhibition to be held by the Netherlands Chrysanthemum Club in Amsterdam on October 31 to November 9 next, has just reached us. Forty-seven classes are provided and several of these are open to all countries. The prizes offered are gold, silver-gilt, silver and bronze medals of values varying in accordance with the importance of the class. The officers of the Netherlands Chrysanthemum Club are very anxious that British growers should exhibit at their forthcoming exhibition and they hope that raisers will send flowers of their novelties to what promises to be one of the largest autumn exhibitions yet held in Holland. If two or three British exhibitors' are prepared to combine their exhibits for the purpose of transport, transportation costs will be defrayed by the Netherlands Chrysanthemum Club, as the Dutch growers are especially anxious to see the English novelties, and moreover, if raisers cannot spare the time to attend with their own productions, but are willing to send flowers, the latter will be unpacked and exhibited by the officials free of charge, with the senders' name attached in every case. Correspondence should be addressed to Mr. C. Thim, 56, van Baarlestraat, Amsterdam.

American Gladiolus Society.—This Society was founded just fourteen years ago, and it issued a periodical *Bulletin*, of which seven numbers appeared. The publication then ceased but the Society continued its work and the membership appears of late years to have increased in a remarkably encouraging manner. When the new President accepted office in 1921 there were 279 members only. In two years the number was brought up to over a thousand. During the past six months Mr. John C. Davis, the new Secretary, has had the satisfaction of seeing about six hundred new members added to the roll. The bye-laws have been thoroughly and carefully revised; provisions have been made for registering and testing in Official Trial Gardens new varieties of Gladioli and for granting certificates to such as are found worthy. This and much more is being undertaken by the Society as we learn from the newly issued *Bulletin*. The first number of this publication bears date April, 1924, and it is intended to supply members of the Society with it regularly and free of cost. A publication of this kind is always of interest to the members of any Society who live at a distance from the headquarters where exhibitions are held, and by such means they can obtain a general idea of the work that is being done by the Society which they support. The new *Bulletin* is rather larger in form than the older one, and its contents are consequently in greater quantity and variety. In size it is 10½ inches by 7¼ inches. It is enclosed in a stiff, blue paper wrapper and has 32 pages of clear, well-printed text. As is common with such publications the literary matter is mainly of interest to members and deals not only with Society matters but with culture, registration, etc. It is a very promising first number and we shall look forward to the pleasure of seeing its successors. The Secretary is Mr. John C. Davis, 77, South Avenue, Rochester, N.Y.

British Mycological Society.—The Annual Phytopathological Excursion, arranged by the British Mycological Society, will take place at Reading on Saturday, June 28, under the guidance of Mr. W. Buddin. During the afternoon the collection of Wheats and the Agricultural Botanic Garden of Prof. J. Percival will be visited. Lunch will be arranged at the College Horticultural Gardens and tea will be provided. Non-members will be welcomed, and all those who intend to take part in the excursion are asked to inform Mr. W. Buddin, 7, Redlands Road, Reading, not later than Monday, June 23.

Primula acaulis × elatior × Juliae.—At the April meeting of the Manchester Literary and Philosophical Society, Prof. F. E. Weiss, D.Sc., F.R.S., exhibited a plant obtained by pollinating the hybrid between the Primrose (Primula acaulis) and the Oxlip (Primula elatior) with the pollen of Primula Juliae, a small alpine species with purple flowers, thus obtaining a tri-hybrid Primula. The hybrid P. acaulis × P. elatior is common in nature, and except that the flowers are borne on a scape they resemble in appearance those of a small Primrose. The hairy nature of the pedicles is inherited as a dominant character from the Primrose. The leaves of the hybrid are intermediate in shape and distinctly hairy. Primula Juliae, a trans-Caucasian species, was first described in 1901 and introduced into England in 1912. It has a somewhat creeping habit, small rounded leaves with distinct red leaf stalks, and bears its flowers singly on long pedicels. The pedicels and calyx are almost glabrous and so is the leaf, with the exception of the margin. The tri-hybrid Primula acaulis × elatior × Juliæ, though of larger size, has the habit of Primula Juliae, and also the almost glabrous character of foliage and flowers, the tomentose condition of the Primrose and its hybrid having been lost. The leaves are larger and more elongate than those of P. Juliae, but smaller than those of the Primrose and the Oxlip. The leaf stalks have distinctly red colouration like those of P. Juliae. The flowers are also generally borne singly, though in one or two cases a diminutive scape is formed. The colour of the flower was in the majority of cases like that of the Primrose, or somewhat paler, but in two cases the plants produced purple flowers, and in one case yellow flowers with a few purple streaks. It has not yet been ascertained whether this tri-hybrid is fertile.

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* U. S. Department of Agriculture. *Bulletin*, No 1201. March, 1924.

Crab Apples.—The description of the Crabs growing in the Arnold Arboretum which is contained in a recent *Bulletin** will recall to those who have visited Boston in spring one of the chief of the many beauties of that remarkable garden. Of the many hybrid Crabs in the Arboretum, the *Bulletin* mentions Malus spectabilis which had been widely cultivated in Chinese gardens before it reached England from Canton in 1780. Of its parents one appears to be Malus rinki, the edible Chinese Apple, but the other is unknown. A hybrid, derived probably from M. spectabilis, is the pyramidal-habited M. macromalus; one of the most distinct of Crabs and worth growing in every garden. M. Scheideckeri, which is now so widely grown in England, is regarded as being a hybrid between M. spectabilis and perhaps M. micromalus. The most interesting of all Crabs does not occur in the Arnold Arboretum—nor, indeed, in any other. This is Malus pumila, a native of E. Europe and W. Asia. Although hybrids of this species are known the wild type of this most valuable tree in the world is still unknown. From it, however, have proceeded, as it is supposed, all the Apples of the world. Nor is there in cultivation a specimen of Malus sylvestris, which has been used, as it is believed, in the production of orchard Apples by hybridisation. The *Bulletin* suggests that an expedition to the remoter parts of E. Turkestan might discover the parent species of all cultivated Apples still living in a state of native innocence, and surely the quest would be well worth undertaking.

Gardening Books in The Sheffield Public Libraries.—A special catalogue of books dealing with allotments and gardens has been issued by the Director of the Sunderland Public Libraries, Museum and Art Gallery. The list includes some one hundred and fifty books classified under the various sections of horticulture, and an initial or initials are employed after the entry to indicate the library at which the book is available. The selection of books is particularly good and it is kept well up-to-date. Attention is also directed to an exhibition of "Friends and Foes of Allotments and Gardens" which is being displayed in the Sunderland Museum Gallery. This highly educational exhibit contains many cases illustrating the life history of numerous insects, fungi, etc., all stages being shown in natural mounting. Each case contains full descriptions and information concerning the control of the pest.

Clay Challenge Cup for the best Scented Rose.—The Clay Challenge Cup, presented by Messrs. Clay for a Rose of good form and colour, not in commerce and possessing the true old Rose scent, such as may be found in the old Cabbage or Provence Rose, in Marie Baumann, General McArthur, etc., will be offered at the Royal Horticultural Society's Fortnightly Show at Vincent Square on July 8 next. The scent known as "Tea Rose" is not, for this competition, to be accounted the true "old Rose scent." Not more than three varieties may be shown by any one competitor, and at least three and not more than six cut blooms of each variety are required. The cup will only be awarded once for the same Rose. It is hoped that this year all the leading Rose growers in the United Kingdom will send in entries for this Cup. The public shows each year an increasing interest in Roses, especially those possessing fine fragrance, and it is hoped that Messrs. Clay's generosity in presenting this Cup will lead to the introduction of new finely scented varieties.

Mr. William Armstrong.—After serving his apprenticeship at Alva House Gardens, Clackmannanshire, Mr. William Armstrong continued for some time as journeyman in these same gardens and subsequently entered service at Taymouth Castle Gardens, Kenmore, where he served as journeyman in all the different departments and finally became foreman, a position he held until August, 1914, when he volunteered for active service and joined the 2nd Scots Guards. After four years' service in France he became general foreman at Garth Castle Gardens, Aberfeldy, and left there to join the firm of Messrs. Hart, landscape architects of Glasgow, from whom he gained considerable experience in landscape gardening and the construction of recreation grounds in various parts of Scotland. On the completion of the lay out of the estate of Balmanno Castle, Perthshire, for W. S. Miller, Esq., he became chief assistant to Mr. John Dick at Coatbridge, a position he held for a little over three years and now that Mr. Dick has become park superintendent at Newcastle-on-Tyne, Mr. William Armstrong has been appointed superintendent of the parks and open spaces to the Corporation of Coatbridge.

MR. WILLIAM ARMSTRONG.

Horticultural Exhibition at Hanover.—On the 20th of September a three-day horticultural exhibition will be opened in the town hall in Hanover, Germany, organised by the national horticultural society, usually known by the initials of its German title, "DAGA." The exhibition, which it is hoped will attract large numbers of garden lovers, will comprise the usual exhibits—flowers, plants, and fruit trees of all kinds, displays of the florist's art (carried in Germany to greater lengths, and occupying a higher position, than in this country), and sundries of all descriptions. It is expected that the German Dahlia Society will send a big combined exhibit, which will greatly help to make the exhibition a success.

Sweet Pea Exhibition at Brussels.—Under the auspices of the Federation of Belgium horticultural Societies and the patronage of Baron Ruzette, the Belgian Minister of Agriculture, the first international exhibition of Sweet Peas will be held in the Botanic Garden, Brussels, on July 5 and 6. No fewer than fifty-six classes have been provided and the prizes will take the form of diplomas and medals of different grades. The schedule is printed in two languages, one in French and the other in Flemish, and the Flemish portion is printed the opposite way (upside down) to the French portion. The Society which is managing the Sweet Pea show has the very charming title of "Les Amis des pois de Senteur."

Rhododendron Griersonianum.—In our account of this handsome Rhododendron on page 359 of our issue of June 14, we omitted to state that the illustration, Fig. 156, represented the truss of flowers on the plant exhibited at the Chelsea Show by T. H. Lowinsky, Esq., Tittenhurst, Sunninghill, Berkshire.

Visitors at Wisley.—On Monday last the gardens of the Royal Horticultural Society at Wisley were inspected by members of the Press and others on the invitation of the Council. The visitors were received by Lord Lambourne, who said that many of the public were not aware of the extent of the work carried on at Wisley. The Director, Mr. F. J. Chittenden, conducted the party through the gardens and pointed out the various trials of flowers, fruits and vegetables, the new Rose garden, the different kinds of hedges, the collection of new plants from China, the rock garden and other features. The Rose garden contains four hundred and fifty varieties, of which two hundred will be judged this season.

The Strawberry Crop.—Present prospects would indicate that in Kent, Herefordshire, Isle of Ely, and Worcestershire, the Strawberry crop is likely to be 20% to 25% above the 1923 crop in those Counties. In Norfolk, the crop is expected to be 10% above last year's, whilst in Cornwall, Devon, Somerset, and Hampshire, it is not likely that the crop will vary much from last year's yield. In Essex, Strawberries have not done so well as last year, and the yield is expected to be much less. Throughout the country as a whole, it would appear at the moment that the total crop may be 15% to 20% above last year's crop, though much depends on the continuance of favourable weather.

Flowers in Season.—Messrs. James Kelway and Son, Langport, have kindly forwarded us a box of Paeony blooms of many of their newer introductions. Among the single varieties were Lord Kitchener, deep crimson; Austen Chamberlain, deep rose; and Pitney, a large flower with silvery-pink petals. Of double varieties there were beautiful blooms of Evening Glow measuring seven inches across; it is full of glowing, rose-lilac petals, the tips of which are coloured cream. The outer petals are broad and of a delicate shade of rose. Beatrice Kelway is a very attractive flower with rose-coloured outer petals; the centre is very full, the daintily crimpled petals being streaked and tipped with lilac, making a pleasing colour combination. Kelway's Remembrance and Gloriana are two very full, huge, self-coloured flowers. The former is of a rich claret tone and the latter a bright shade of deep rose. The beauty of the variety Colonel Lockwood lies in its broad serrated inner petals, which are of a lilac shade, tipped with white, the outer petals being of a deep rose-mauve colour. Kelway's Success is a magnificent flower, with silvery rose-pink outer petals, while the centre is composed of petals of a cream colour, flushed with apricot. Another excellent bloom is Anne Askew, with light rose-pink outer petals, and a centre composed of long, white petals, while Lady Stadbroke, light rose, and Kelway's Darling, white, were two other very pretty flowers.

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* *Bulletin of Popular Information.* May 29, 1924. Arnold Arboretum.

The Harding Cups for Paeonies.—Owing to the late season the Council of the Royal Horticultural Society has decided that the first of the three silver cups presented to the Society for Paeonies by Mrs. Edward Harding will be offered for award on Tuesday, June 24th, for the best exhibit by an amateur of three flowers each of six varieties. The Council hopes that as many amateurs as possible will send in entries. No charge will be made for space, and vases will be obtainable at the Hall.

Appointments for the Ensuing Week.—Tuesday, June 24: Royal Horticultural Society's Committees meet (2 days); Bournemouth Horticultural Society's show (2 days); Newcastle and District Horticultural Society's lecture. Wednesday, June 25: Morley and District Paxton Society's meeting. Thursday, June 26: Royal Botanic Society's meeting. Friday, June 27: National Rose Society's show in Regent's Park; Manchester and North of England Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Paulownia imperialis.*—At last Paulovnia has flowered in England, and its bloom is on our table—sweet as Violets, large as a Foxglove, tinted like a Lilac. Mr. Malleson, the Royal Gardener at Claremont, has had the honour of first compelling this plant to produce its charming flowers, which many have longed, and none been able, to see, except a few who have chanced to be present at its blossoming in some continental gardens. Possibly our readers do not know what Paulovnia is. It may be described as a tree with huge roundish green leaves like those of a Catalpa. It is hardy, grows with great rapidity, and derives considerable beauty from its foliage; but it is apt to make watery wood, which ripens ill, and its blossoms, formed in the autumn, are liable to be killed by winter, unless protected by Fern leaves, as was the case at Claremont. It has been introduced to Europe by the Dutch, through Professor Siebold, who has figured it in his work on Japan plants, and who describes it as a tree from thirty to forty feet high and two or three feet in diameter, producing a very light white wood. Being "one of the most magnificent plants of Japan," it was named in compliment to Her Imperial and Royal Highness the Hereditary Princess of the Low Countries; and also because "its leaf, ornamental with three flowering branches, formed the armorial bearings of the great hero Taikasama, for which reason it is held in high honour in Japan." We quote from Siebold, who further describes the tree as forming a large head, with numerous stout arms branching from it at right angles. He says that the beautiful fragrant flowers appear (in Japan) at the beginning of April, after the leaves are expanded. In general size they call to mind the noble clusters of our Horse Chestnut, loaded with blossoms resembling the purple Foxglove in form, size, and colour. The tree is reported to grow most commonly in the most southern provinces of Japan, where it thrives in the valleys and on the slopes of hills fully exposed to the whole force of the sun. It grows there so fast that suckers three feet long became from ten to fifteen feet high in the Botanical Garden of Decima in the first year. Although the plant has been thus brought to notice by von Siebold, it was in reality well described and figured by Kaempfer, more than a century since, under the name of *Kiri*, which it still bears. *Gard. Chron., June* 23, 1849.

Publications Received.—*Mrs. Beeton's Jam-making, Preserves, Marmalades, and Pickles.* Illustrated. Ward, Lock and Co., Ltd. Warwick House, Salisbury Square, E.C. 4. Price 2s. 6d. net. *Manures and Fertilisers.* By W. Dyke. Edited by T. W. Sanders. W. H. and L. Collingridge, 148, Aldersgate Street, E.C. Price 4s. net. *Forests of British Columbia.* By H. N. Whitford and R. D. Craig. Commission of Conservation, Canada.

ORCHID NOTES AND GLEANINGS.

ODONTIODA ZENA.

FLOWERS of a very pretty and distinct Odontioda raised between Oda. Devossiana (C. Noezliana × O. Edwardii) and Odm. Pescatorei and named O. Zena are sent by Messrs. Cowan and Co., Southgate. They disclose singular colour peculiarities. The old Oda. Devossiana showed none of the purple of Odm. Edwardii, but a very rich deepening of the scarlet in Cochlioda Noezliana. Used again in the present combination the dark scarlet of Oda. Devossiana vanishes and the shape and marking of the hybrid are nearly like a heavily blotched Odm. Pescatorei. The flowers have a white ground heavily marked with dark claret-purple on the inner two-thirds of the segments; the tips and margins are pink.

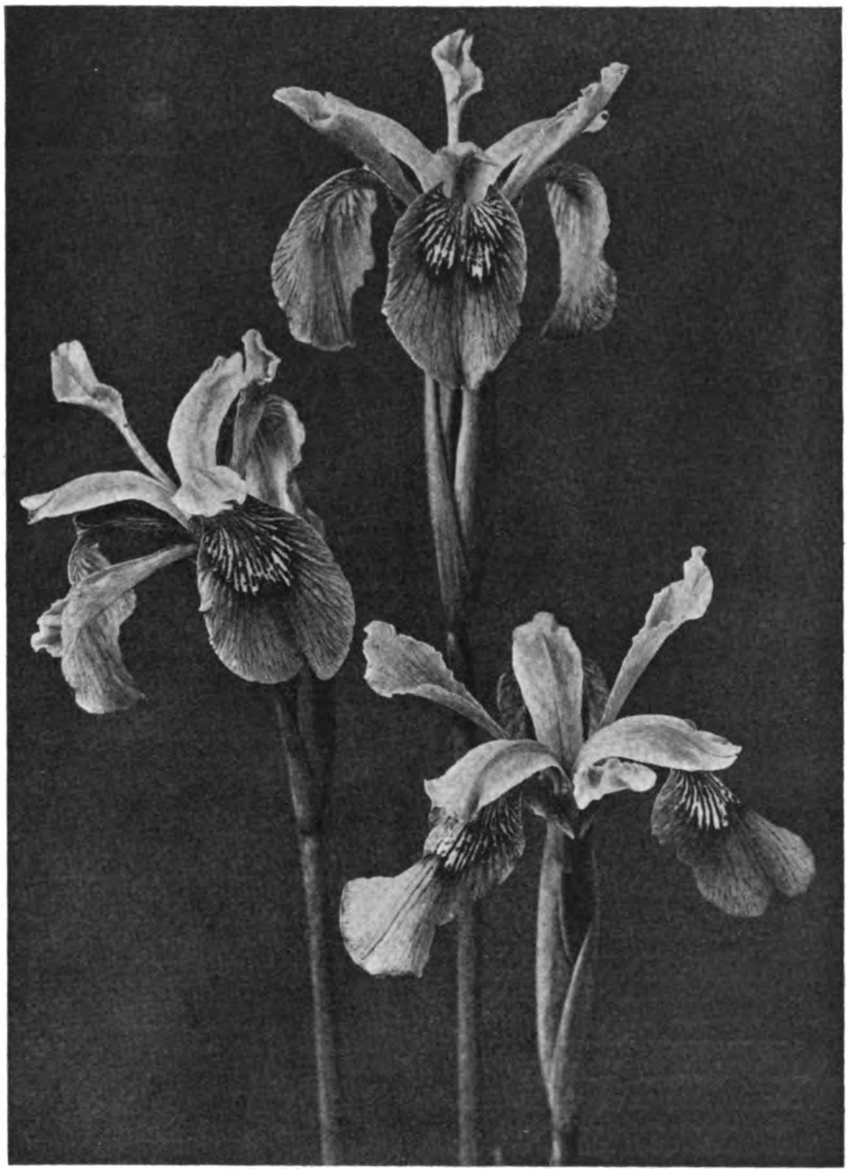

FIG. 161.—IRIS CHRYSOGRAPHES VAR. EPAULETTE.

R.H.S. Award of Merit, June 11 (see p. 367).

ONCIDIUM PAPILIO.

THE Butterfly Orchid invariably arrests attention when flowering in a private or trade collection or when staged in a group at an exhibition. The species is not seen so frequently as it used to be, probably owing to the lack of importations in recent years, consequently the wonderful variety, Atlas, exhibited by Messrs. Charlesworth and Co. at the Chelsea Show, was greatly admired. As already recorded in these pages this variety obtained an Award of Merit. Although O. Papilio shows variation in form and intensity of colour, the variation is within small limitations, hence the unusual attractiveness of the variety Atlas, in which the labellum is developed to an unusual size.

Apart from its flowers, the plant is attractive by reason of its stiff, mottled, purple and green leaves, one of which is borne at the apex of each compressed, orbicular and usually purplish pseudo-bulb. Reference to the figure of this species in the *Bot. Mag.*, t. 2795, shows a somewhat poor form, but there is the following interesting note at the end of the description:—"From the stove of the Glasgow Botanic Garden, to which the plants were liberally communicated by the late Baron de Schack, from Trinidad. The species blossomed in 1826, and again in June, 1827. It is among the most singular and most beautiful of the extensive parasitic family with which our hothouses are now so abundantly stored, and is well named Oncidium Papilio by Mr. Lindley."

The plate is dated January 1, 1828, and it is of more than passing interest to observe that the difference between a parasitic and an epiphytic plant was not fully recognised about a hundred years ago.

The Week's Work

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park Reigate.

Dendrobium. — The evergreen section of Dendrobiums which includes D. thyrsiflorum, D. chrysotoxum, D. densiflorum and D. Farmeri, should be kept cool, and the roots maintained on the dry side after the plants have done flowering. Any necessary re-potting or re-surfacing should be done so soon as fresh roots develop from the bases of the young growths. These plants should not be subjected to root disturbance until it is really necessary, as they flower much more freely in a root-bound condition than when afforded a liberal rooting space. Specimens showing signs of deterioration should be removed from their receptacles, the old soil shaken from the roots and the plants potted afresh. Ample drainage should be provided and the compost pressed firmly round the base of the plant. Equal parts of Osmunda-fibre and Sphagnum-moss form a suitable rooting medium. After re-potting, the plants should be placed in an ordinary plant stove, or in the warmest Orchid house, where they should remain during their growing period, and afforded liberal supplies of water at the roots. When the season's growth is completed the water supply should be reduced gradually and the plants rested during the winter in a cool greenhouse, or a house of a similar temperature.

Odontoglossum citrosmum.—As plants of this species pass out of flower any necessary re-potting should be attended to. If the compost is decomposed the plants should be taken out of their pots, all the old rooting material shaken from them, the dried roots cut away, and potted afresh in comparatively small pots or pans. Perfect drainage and firm potting are essential. Specimens that are in receptacles of sufficient size for the present season's growths need not be disturbed if the compost is in good condition, but a little of the soil may be removed from the surface and fresh compost substituted. The plants should be grown in a light position in a house having an intermediate temperature, and watered sparingly until the new roots have become active; the compost should be kept moist by overhead sprayings. After the season's growth is finished this Orchid should be afforded a long season of rest under drier and cooler conditions.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Anemones.—Where these plants are raised from seeds another sowing may be made now even if a good stock of plants is to hand from the earlier sowings. By this arrangement the flowering period will be prolonged and frequently very fine blossoms result from sowings made this month.

Aquilegias.—Seeds of Aquilegia sown in the open ground so soon as they are ripe will germinate quickly and the seedlings make strong plants by the autumn; they will withstand the winter without protection.

Lawns.—Abnormally heavy crops of grass are general, and mowing should be regularly carried out as often as necessary, which in some cases may be every fourth or fifth day. Where hand machines only are used occasional rolling when the lawns are moderately moist will be necessary to keep the surface consolidated, but motor-mown stretches will receive sufficient rolling in the operation of mowing.

Border Carnations.—Before they are too far advanced in growth the flower spikes of border Carnations should be staked neatly and the necessary disbudding carried out. The various Pinks and Dianthus Allwoodii are beautiful plants which are easily propagated from cuttings. Where large quantities are required a cold frame should be prepared for them. Inserted in light, sandy soil and kept shaded for a few weeks the cuttings will root freely, when they may be gradually exposed to light and air, until finally the lights are removed entirely.

Brompton Stocks.—For producing a fine display of flowers in May and June these Stocks are invaluable, but a long period of growth is needed and seeds should be sown not later than midsummer. Sow in a cold frame, but immediately germination has taken place ventilate the frame freely and remove the lights entirely at an early stage to ensure sturdy, short-jointed growth.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Early Pot Fruit Trees.—After the fruit is gathered from pot trees and the latter hardened gradually the trees should be placed out-of-doors in a partially shaded position for a short time. Afterwards they may be stood fully in the open to complete the ripening of the young wood. Plunge the pots in a bed of coal ashes to about half-way up the receptacles' to prevent them being blown over by the wind. See that the roots are well supplied with water or detrimental results may follow. Trees that have matured good crops of fruit and have been fed with liquid manure or other stimulant, should have the amount of fertiliser gradually reduced, but it is not advisable to discontinue the use of a liquid stimulant for some time, to help to build up good wood for next season's crop. Where the trees have been attacked with red spider they should be sprayed with an insecticide to keep the pest in check. On all bright days the trees should be syringed vigorously in the evenings.

Peaches.—Trees in the early Peach house that have been cleared of fruit should have plenty of fresh air both night and day and be syringed vigorously twice daily for some time to come to keep the foliage clear of pests. Old trees that have carried heavy crops should receive frequent supplies of manure water, and at no time should the border be allowed to become dry. Much will depend on next season's crop how the trees are treated when a heavy crop has been taken from them, therefore regular attention must be given with regard to watering and feeding to assist the proper ripening of the wood, and to build up the buds for next season's crop.

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Disbudding.—Where time can be spared it is advantageous to attend to all fruit trees that require stopping, pinching back the sub-laterals or side growths to three or four buds while the wood is young. Secondary growths will develop later, and these may be pinched back to one eye. Doing this as growth is made does not check the trees so much as when a wholesale pruning is done in late July or August, and it throws the strength into the fruit, which is the point to be aimed at, and also allows light and air to enter all parts of the trees. The leaders required for extension may be left for some time, as they promote healthy root action. Where trees are thickly set with fruits, they will also require attention, and so soon as the best fruits can be decided on, the others should be picked off, leaving, in the case of Apples and Pears, one or two at each station. Care should be taken if the fruit is required for exhibition to leave those best placed to receive all the sun and air possible.

Cherries.—Both Sweet and Morello Cherries promise good crops, and no time should be lost in getting the nets placed over the trees. If a framewood of thin wood can be placed in front of the tree about eighteen inches from the wall, and the nets hung over this, it will be much more convenient than when the nets are hung closely to the wall, and will also ward off attacks of birds better. Trees having very large foliage should have a few of the leaves picked off if they shade the fruit from the sun. No harm will result, and the fruit will be of much better flavour. Also remember to water the trees well as the fruit is swelling, as this will greatly add to their size and flavour, and if diluted manure water can be given so much the better. Pinch the laterals to two or three buds and take the tips off the leaders when they have finished growing. Young wood, well matured, usually produces the finest fruit, and sufficient should be trained in to furnish the wall.

Gooseberries.—Where the bushes are fruiting thickly the smaller berries should be gathered and used for tarts or bottling, thus relieving the bushes and allowing those left to attain to a larger size. Some of the non-fruiting growth may be removed to allow sun and air to reach the centre of the bushes.

Hoeing.—This is a most important operation in connection with fruit-growing, and every effort should be made to keep the surface soil loose and friable. This will prevent the ground from cracking should the weather prove hot, and greatly stimulate the trees. Where manure cannot be obtained for mulching, the hoe should be used constantly and this will almost answer the same purpose in keeping the soil below moist.

PLANTS UNDER GLASS.

By F. J. Clark, Gardener to Lt.-Col. Sir George Holford, Westonbirt, Tetbury, Gloucestershire.

Perpetual-flowering Carnations. — Careful attention in the matters of stopping and timing of the plants which are being grown for next winter's flowering must be continued during the next two months. The actual operation of stopping is a simple one, but careful and considered judgement on the part of the grower, is required as to when the growth should be stopped. As the object is to ensure a continuous supply of flowers throughout the winter and spring, and bearing in mind that from the time of the actual stopping of a growth at least three to four months must elapse before the resultant side growths will flower, it is obvious that the stopping should be done regularly and at short intervals. It is well to examine the plants at least twice a week and to stop any growths which are at the right stage, that is when four or five pairs of fully developed leaves can be left on the treated growth. It will be wise also not to stop more than one growth on the same plant at one time.

Ceratostigma Willmottiana.—This comparatively new plant has deep blue flowers. It is almost hardy (planted outside against a south wall here, it has safely come through last winter) and is also worth growing in pots for the conservatory. It is very easy of cultivation; cuttings strike very readily and, unlike Plumbago capensis, it can be grown in full sunshine.

Malmaison Carnations.—Immediately after the young plants have flowered, or in fact during the flowering period, it will be wise to select the plants from which it is intended to secure layers for next year's stock, to mark them and to take away weak and superfluous growths with a view to obtaining the best possible material for layering. It will be well also to select the plants which will be required for potting on after flowering, so that special attention may be given them to prevent possible checks, against the time when it will be convenient and desirable to afford the plants larger pots.

THE KITCHEN GARDEN.

By **Walter Y. Staward**, Gardener to Mrs. **John Feeney**, The Moat, Berkswell, Warwickshire.

Leeks.—As soon as time will permit after this date the main batch of Leeks should be planted in well-manured ground. A suitable method to follow when dealing with a large quantity is to draw lines 18 inches apart and then make holes with a dibber wide enough and deep enough to accommodate the bottom part of the plants. A distance of 10 inches to 12 inches between the plants will be sufficient. Where early Leeks are being grown for exhibition purposes every attention should be given the plants to keep them free from weeds. The use of a quick-acting soluble fertiliser occasionally and plenty of water at the roots are necessary to obtain the finest specimens.

Brussels Sprouts.—The earliest plants of Brussels Sprouts require attention. All weeds should be destroyed and plenty of soil drawn up to the plants to keep them steady in the ground; any plants that are inclined to fall over should be secured to a stake. Later batches may still be planted.

Aubergines.—Seedling Aubergines are ready for their final potting, receptacles 8 inches or 9 inches in diameter being suitable. The soil should contain well-rotted manure and a quantity of wood ash. Pot the plants fairly firmly and water them carefully, also syringe them at least once a day to keep the foliage clean.

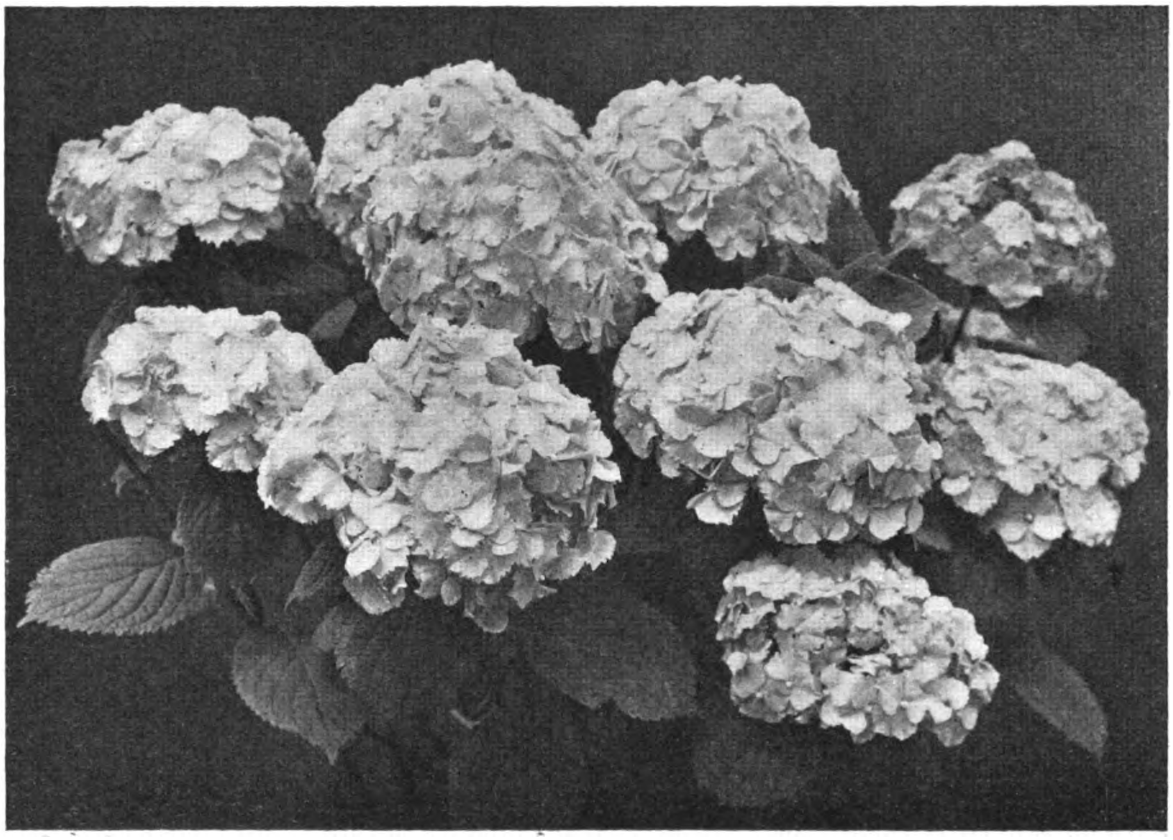

FIG. 162.—HYDRANGEA ELMAR.

R.H.S. Award of Merit, June 11 (see p. 367).

BULB GARDEN.

THE WEATHER AND MAY-FLOWERING TULIPS.

The note contributed by *N.* on page 335 (June 7) about the behaviour of May-flowering Tulips in his garden this year interested me. I grow many thousands, and for a long time my gardener and I congratulated ourselves that we had never seen them look better. Even now, after all they have gone through, the foliage is remarkably free from fire. With the exception of Inglescombe Yellow all *N.'s* blooms seem to have suffered from the buffeting of the rain and wind and to have been below par. Such has not been my experience. I could have shown him a bed containing probably about 850 bulbs in ten varieties which with one exception were, as the expression goes, "a picture." I never wish to see finer flowers, and until an extra heavy fall of rain, mixed with sleet and hail, came, they looked fine. This was not our experience everywhere. In certain parts blooms suffered badly and soon became, as a lady visitor expressed it, "afflicted with measles." Why should there be such a difference within a hundred yards? I think because the badly affected blooms were more exposed to the north wind than the good ones, and also because the good ones were on ground which had had no Tulips on it for two years. I feel sure that wind in some mysterious manner is very detrimental to Tulips, and further that it is a "*bene esse*" to plant Tulips on new ground as often as is possible. I would like to know if *N.'s* Inglescombe Yellow were on new ground or not. With regard to size, the large majority of our varieties were not up to the mark. They were distinctly small. This is no doubt the result of the repeated night frosts the plants experienced long after such nightly visitations should have ceased. At the same time all the beds looked very healthy, with the exception of one spot about twenty yards by twenty yards which often suffers because it is just where the north wind appears to hit us the hardest.

The behaviour of Tulips is one of the many things no grower can understand. I think the general opinion is that the dark varieties suffer more than others in a bad season. I was very surprised to find that a big patch of Moralis, planted between Teddy, Melicette, and Petrus Hondius, was the last of the quartette to "get the measles." Had it been the first to go it would have seemed more natural.

In ordinary years the lasting of Tulips partly depends upon their power of closing up in dull, rainy weather, for it is seldom that the season, from the opening of the first earlies until the final bow of Sprengeri, is quite rainless. This was very pronounced when I had a big trial of early yellows in 1922. A day's rain came. All suffered more or less except my favourite Prince de Ligny. This year, too, why did the Darwin Fanny remain good so long? Because Fanny's closed-up flower is cone-shaped and throws off rain. Might not this be one reason for *N.'s* Inglescombe Yellow weathering the bad season so well. I have none here this year, but if I remember right it is one that closes its blooms well.

With regard to the breaking of stems by heavy rain, *N.'s* expression "beheading them out of hand" seems to imply that Jupiter Pluvius when he visited his garden came as a sort of Lord High Executioner and laid about him right merrily. Thank goodness he spared us, or else our stems were more like Alphonse Karr's *bars de fer* and resisted his onslaught. There are weak-kneed ones which always succumb, like Viking and Beauty of Bath, just as Mauve Clair is unable to withstand the least rough usage.

One question I should like to ask is whether our highly bred English florists' Tulips are able to go through more bad weather than the Darwins? I am inclined to think they are. The substance and quality of the petals, which are necessary to keep the flowers from "quartering"—that is spreading out as in the case of Inglescombe Scarlet—appear to enable them to withstand rain better than others. I have a couple of instances among our Tulips this year which are striking, but in theorising about this elusive flower, "one swallow does not make a summer." *Joseph Jacob.*

DARWIN TULIP PRIDE OF HAARLEM.

I am glad to see this fine Darwin Tulip so favourably mentioned by you among the Tulips at Wembley. It is one of the best of these fine flowers and in masses produces a splendid effect with its bright carmine rose flowers. I saw it in exceedingly fine condition in a north country garden some years ago, a great broad band filling the centre of a border near old fruit trees.

The Tulip had been there for some years and had never been lifted unless for division to extend the band in the border. It had increased splendidly and from a few bulbs originally purchased had multiplied into hundreds. Seen on a bright day it looked really superb; and there are few who know and grow it who are ready to admit that there may be a better of its colour. Pride of Haarlem is now cheap and it is not beyond the means of the vast number of admirers of the Tulip to plant it in quantity. *S. Arnott.*

ALPINE GARDEN.

CHOICE HELIANTHEMUMS.

Certain species of Sun Roses always assert their individual distinctiveness in the rock garden. One of these is H. umbellatum which, when out of flower, looks more like a little Rosemary bush than a Sun Rose, the leaves being linear, about an inch long and dark green with whitish under surface. It is often the first of the Helianthemums to bloom and the pure white, cup-shaped flowers, with a slight yellow stain at the base of each petal, are very effective against the deep green leaves. H. umbellatum also has a much more upright habit than the majority of its kind; it attains a height of about eighteen inches. Though known to our gardens for a large number of years this remarkably distinct Sun Rose is far from common in cultivation.

I consider H. alyssoides the best of the more prostrate, self-coloured yellow species. It makes a dense, broad mat of more or less prostrate branches, and seldom grows much above one foot high. The plant is clothed with downy, grey-green leaves. It commences to bloom in May and continues in flower all the season. The blossoms, often one-and-a-half inch across and borne in a branching, terminal corymb, are a glowing yellow and singularly beautiful. With similar grey foliage but a looser, more straggling habit, and a stature of nearly three feet, the lovely H. formosum may always be recognised by its wreaths of large, bright yellow, saucer-shaped flowers, each petal having a conspicuous chocolate blotch at the base. This admirable species is one of the hardiest of these Mediterranean Sun Roses and a most useful shrub, being well adapted for massing on sunny banks, for the rock-garden or dry wall. It is also one of the easiest of its class to propagate from cuttings. Equally beautiful is the charming self-coloured variety, H. f. unicolour, the blooms of which are rather more cupped in shape and pure yellow throughout. In all other respects this form is practically a replica of the type.

Of a stiffer, more upright and whippy growth, H. halimifolium is a species of the same class as the foregoing and one which makes a delightful group. The bright yellow flowers, with a narrow, purplish-brown mark on each petal, which forms a ring at their base, stand clear above the grey foliage on erect, slender-stemmed panicles six inches to eight inches in length.

Close to this species is the better-known H. algarvense (syn. ocymoides), one of the prettiest of this section of the Sun Roses. The crimson buds are very effective, as in the preceding species, and whilst the flowers are much like those of the latter, the blotch on the petals is broader and thus more distinct. I find that both H. halimifolium and H. algarvense are the better for having the taller and older branches cut-out to the base every year or two, this treatment keeping the bushes more shapely and rendering them less liable to be worked loose or broken by wind.

H. lunulatum is one of the most delightful of all rock-garden shrubs for a sunny place in stony soil. It makes a compact, rounded bush about eight inches in height, the numerous slender branches being clothed with very small, oval-pointed, pale-green leaves, silvered with a few silken hairs when young. The bright yellow flowers, about half-an-inch in width and borne profusely through all the summer, may be distinguished from those of all others by the tiny orange crescent at the base of each petal. This species, though it appears to be reasonably hardy, is apt to lose most of its foliage in winter, but it makes a speedy recovery in genial spring weather.

Of H. vulgare and the numerous Sun Roses of garden origin very much may be written. These elegant and floriferous little plants constitute one of the most invaluable groups of rock-plants we possess. They are hardy, easy of cultivation, extremely showy and they flower profusely from April to July. Though generally regarded as subjects for poor, hot soils, I find that these Sun Roses, growing in such a medium, are benefited by old cow manure in the soil and applied in the later summer as a top-dressing. This manure gives increased vigour to the plants, a longer flowering season, larger flowers, and it helps indirectly to ward off mildew.

H. Tuberaria is totally distinct from all the preceding since it consists of a mat of prostrate, Plantain-like leaves, ribbed and glossy, above which rise short, flowering stems that bear large, yellow blossoms. Damping-off in wet weather in winter is the only trouble which seems to beset this interesting Sun Rose, but it will generally survive on a sunny and sheltered sloping ledge with a root-run consisting mainly of chips and old mortar or lime-stone. H. obtusum is said to be a plant of somewhat similar description, with white flowers, but I have had no experience with this Sun Rose. *A. T. J.*

CAMPANULA PLANIFLORA.

Under the name of Campanula nitida alba, the white variety of Campanula planiflora was exhibited in the group of alpines shown by Messrs. M. Prichard and Sons. at the recent Chelsea Show. It is seldom that any of the forms of C. planiflora are exhibited now, and we do not frequently meet with them in many rock gardens, although at one time, when there was less choice, C. planiflora was to be observed in the comparatively few good collections of Alpines.

At that time the plant was generally known in gardens as C. nitida.

I am acquainted with four varieties of this Campanula, and I have heard of a fifth, although I have not met with it in flower. The type is a neat little plant with thickish, glossy, hardish leaves and spikes of open flowers resembling those of C. latiloba (C grandis of former days) but smaller. The colour is a good blue and the spike is generally from six inches to nine inches high, though rarely we may see it as much as twelve inches. The flowers of this plant are single. The white variety, C. planiflora alba is also single, and is a delightful little plant.

There are two or three double forms, with the blooms curiously invested with extra segments. One has blue flowers like those of the type, and the other is white with the same formation of flower. I have never seen these double forms, respectively called C. p. fl. pl. and C. p. alba fl. pl. so tall as the singles. There is said to be a paler blue-flowered double variety. This plant comes from North America and is believed to be a true species.

The late Rev. C. Wolley-Dod informed me that he had raised a similar plant from seeds of C. persicifolia, but there is probably a mistake in this. However this may be, it is a pleasing little alpine and not now plentiful. Although quite hardy, it should be propagated by division occasionally, as I have seen old plants die off without apparent cause. An open soil of loam, sand, and leaf-mould suits C. planiflora. I consider that it likes a little shade. *S. Arnott.*

HARDY FLOWER GARDEN.

OSTROWSKIA MAGNIFICA.

Seeing the rare Ostrowskia magnifica offered in a catalogue the other day, and knowing the difficulties others, as well as myself, have had with this plant, I thought I would turn to what the late Mr. Reginald Farrer said of it with a view to finding out if there was a more excellent way of treating it than is generally adopted. What was my surprise to observe directions that seemed so extraordinary that they are worth paraphrasing, at least for the benefit of those who may desire to possess and to succeed with this plant, which, when in perfection, justifies its specific name of "magnifica."

My first acquaintance with O. magnifica was, I think, some thirty years or more ago, when I met with it in the garden of a devoted and wealthy admirer of hardy flowers, who was always on the look-out for something fair or unusually fine. He had acquired his plant the preceding year and had flowered it then. When I saw it the following spring it had made its growths early, and as there was some danger from late frosts, it was protected by a handlight at night to save it from injury. But it never flowered again in that garden although it was in a sunny place and was kept for some years in the vain hope of seeing it flower once more. But with that good friend the hope of its flowering was not one which sprang eternal, and ultimately O. magnifica was cast out ignominiously as a cumberer of the ground. I was not daunted, however, and secured specimens twice, but all my efforts to grow and flower the plant have been in vain, even in sunny, sheltered places, in light soil. Farrer advises us to get "large trunks as thick as our arm"; to ram the surface of a deep, sloping bed of limy loam in full sun until it is "as hard as a threshing-floor." Then we are to take a crowbar and to make a hole wide enough and deep enough to hold the trunk of the Ostrowskia, to fill up the hole, tread the soil firmly and then to leave the plant alone. We are told that it will continue to throw up jts leaves and flowers untended. It is all so simple to read, but one is not too sure that the method will succeed everywhere. But it is worth trying, and even though the Ostrowskia is not a fascinating object after it flowers, we would welcome its glaucous leaves and big, balloon-like blue flowers in their time—June or thereabouts. It would be of general interest to hear the experience of others who have tried this beautiful plant and who have induced it to bestow upon them its attractions. The finest plants I have ever seen were in a warm border in front of a greenhouse and in good loam. *S. A.*

ANNUALS FOR GREENHOUSE AND CONSERVATORY DECORATION.

DIMORPHOTHECA

The beautiful South African Composite, Dimorphotheca aurantiaca, with brilliant, orange-coloured flowers, is very useful for greenhouse decoration as it is a quick growing plant and soon produces its blooms. There is no need to sow seeds during the autumn, as it grows and flowers quite well from seeds sown early in the new year. This is a great advantage as it does away with the difficulty of bringing seedlings safely through the dull, sunless days of winter. Lack of sunshine and good light in winter is the bane of all the sun-loving South African plants.

Seeds should be sown thinly in pans or boxes placed in a cool greenhouse. When large enough to handle the seedlings may be pricked off into boxes, or, if so desired, placed singly in 48-sized pots, in which they can be flowered. If larger specimens are required four plants may be grown in a six-inch pot. The plants must have timely support with slender sprays of Hazel or similar material. The whole secret of the successful cultivation of this plant lies in careful watering and perfectly cool cultural conditions at all times, with free exposure to light and air. Dimorphotheca aurantiaca is ideal for a small, unheated greenhouse. In addition to the type there are now quite a number of varieties with flowers of various shades of yellow-salmon, buff and tinted white.

D. pluvialis (Cape Marigold) a hardy annual, with white flowers, tinted violet on the outside of the petals, may be successfully grown under the same conditions as advised for D. aurantiaca.

ECCREMOCARPUS SCABER.

This climber, with its beautiful, tubular, orange-coloured flowers, is really a perennial, but for the present purpose may be regarded as an annual. It may be raised from seeds sown early in the year, in slight heat, and will flower the same season. It is a quick-growing plant and its successful cultivation presents no difficulty as it grows freely in any good potting compost, and may be grown either in large pots or planted out in the conservatory.

Eccremocarpus scaber may also be planted out-of-doors; in the southern counties it is hardy when trained against a warm wall.

ESCHSCHOLZIA CALIFORNICA.

Of this showy plant there are now many beautiful varieties, but unfortunately it is not generally regarded as suitable for pot culture owing to the mistaken idea that seedlings cannot be successfully transplanted. This is a mistake, as young seedlings may be pricked off by a skilled cultivator. Five or six seedlings should be transferred direct to their flowering pots, 48's being a suitable size; the seedlings may afterwards be reduced to three in a pot.

If desired the seeds may be sown direct into the flowering pots and the seedlings afterwards thinned to the required number. Careful watering is necessary at all times, and as Eschscholzias are sun loving plants, they must have at all times full exposure to light and sunshine. They are best grown in cool, airy pits, and kept well up to the roof glass. Eschscholzias are especially well suited for small, unheated greenhouses.

There are now many charming forms which in trade lists are given varietial names. The colours vary from ivory-white and buff through varying shades of rose, yellow, orange and scarlet to claret and ruby-red, while in some varieties the outside of the petals is a different colour from the inside; in others again the petals are fluted or frilled. *J. Coutts.*

TREES AND SHRUBS.

RHODODENDRON BRACHYANTHUM, Franch.

Among the many new and distinct Rhododendrons introduced from China during the past twenty-five years R. brachyanthum is exciting more than ordinary interest among Rhododendron enthusiasts. It was first recorded by the Abbé Delavay in the mountains of Tsang-chan, near Tali, in Yunnan. For its introduction we are indebted to Mr. George Forrest, who found it during the summer of 1906 growing on the eastern flank of the Tali range at an altitude of 10,000 to 11,000 feet in Western Yunnan. His collection number is 692 F.

R. brachyanthum is an evergreen shrub described as growing two feet to five feet high. The oblong lanceolate leaves are one to one-and-a-half inches long and a half to three-quarter inches wide, probably a little larger on older specimens, deep green above, glaucous beneath, with a short leaf stalk. The sulphur-yellow flowers are produced at the ends of the branchlets in a cluster of three or four, occasionally more. The scaly red flower stalk is about one inch long. It has a conspicuously large, pale green, five-lobed calyx, divided nearly to the base, the calyx exceeding a quarter-inch long. The broadly bell-shaped corolla is about three-quarter inch in diameter and length, with five rounded lobes one-third the length of the corolla. The brownish-red tipped stamens, half-an-inch long, just exceed the length of the style.

A dainty and very distinct addition to the cultivated species of Rhododendrons, R. brachyanthum can only be confused with R. sulphureum. *A. O.*

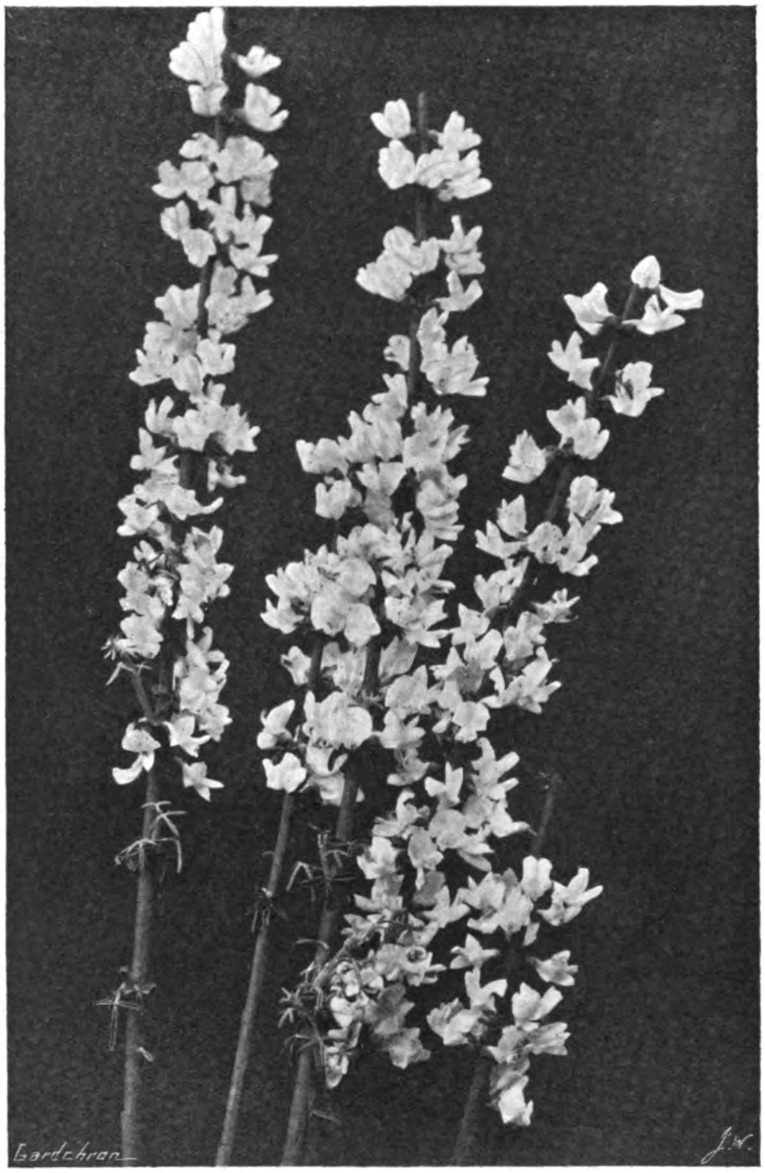

FIG. 163.—CYTISUS SUPRANUBIUS.

R.H.S. Award of Merit, June 11 (see p. 367).

CYTISUS SUPRANUBIUS.

The beautiful fragrant Broom illustrated in Fig. 163 is sometimes known in gardens as Spartium nubigenum and, although not hardy in all parts of the country, may be recommended for warm districts, as it is one of the handsomest of its tribe. It will grow as high as ten feet and the beautiful Broom-like habit is very pleasing, whilst in May the shoots are crowded with milky-white flowers that are sometimes tinged with pink.

EDITORIAL NOTICES.

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THE PRESENT AND PAST DISTRIBUTION OF RHODODENDRON PONTICUM.

THE present and past distribution of Rhododendron ponticum has for many years been a matter of wide interest, and its recent discovery in an area extending its known native habitats is one of some importance. The species occurs in the south-western Caucasus (Colchis or Pontic area), from sea-level to 1,800 m. The general flora here, on account of the very plentiful precipitation, differs decidedly from that of the typical Mediterranean Region.[*] Boissier records the species as far west as between Nicomedia (Ismid) and Bolu (Boli) in Bithynia and Northern Anatolia, and there is a specimen in the Kew Herbarium from Mount Olympus, in Bithynia, collected by Noé. Probably it has a wide distribution from east to west in the northern parts of Asia Minor. It also occurs in Azerbaijan and in the Lebanon, from 1,000 to 2,000 m., as the so-called variety brachycarpum, Boiss., which cannot be separated from the typical plant in a large series of herbarium specimens.

A second area, isolated from the nearest locality in Asia Minor by some 1,500 miles, is in the south-western and western portions of the Iberian Peninsula. The plant occurring here was distinguished by Boissier as a distinct species under the name R. bœticum. Many authorities, however, have not accorded it specific rank, and, in any case, it must be considered as a closely related derivative of the eastern plant or of a common ancestor. It occurs in several more or less widely separated areas. 1. In the southern part of the province of Cadiz, to the west of Gibraltar. 2. In south-western Portugal, Algarve, Serra de Monchique, Monchique, Mount Foia, 903 m., and Picota. 3. In northern Portugal, north of Coimbra, in Beira, at Oliveiro de Azameis, Caramuls, and Agueda. It is also recorded from Adelpheira and Loendro, which localities I have not found on the map.

Evidence accumulated by the study of the distribution of other South European plants would lead to the conclusion that this is a "Tertiary Relict." The phrase is sometimes used in a rather vague and inaccurate sense, and it is only substantially correct to apply it in this case supposing it to indicate that our plant had a more continuous area of distribution in inter- or pre-glacial times than it has now. That this is so is shown beyond doubt by the discovery of fossil remains in several intermediate localities.

Apparently the first fossil record is that by Sordelli,[*] who described it under the name of Rhododendron sebinense from interglacial layers in the neighbourhood of Pianico Sellere near Lovere, on the Iseo Lake, in northern Lombardy. It has been recorded several times since from this same neighbourhood.[†] The best known records, however, are those from the Höttinger breccia, near Innsbruck, whence it was originally described by Wettstein.[‡]

In this connection, a quotation from W. B. Wright, "The Quaternary Ice Age," p. 137, seems appropriate. "The Höttinger breccia is a firmly cemented scree formation, the interglacial age of which was demonstrated by Penck in 1882. It is clearly overlain by older moraine and glacial laminated clays. As doubt has been expressed as to whether the underlying glacial deposits are really older than the breccia, and not thrust in beneath them by the ice, it is important to note that Penck has now succeeded in proving them beneath the breccia in five distinct exposures. The plant remains which were found in the Höttinger quarries, do not lie among the bedding planes of the breccia, but traverse them obliquely as if suddenly overwhelmed. Of the forty-two species determined with certainty four are new, but possess near relatives among living plants. All the rest are still living, not a single one being known from the Tertiary. Of these, thirty of the species live at present in the neighbourhood. Of the remainder, Rhododendron ponticum and Buxus sempervirens are distincly southern. One of the new species, Rhamnus hoettingensis, resembles the southern R. latifolius from the Canaries. There is a distinct relationship, pointed out by Wettstein to the Pontic wood-flora which flourishes about 5° farther south, in a district where the mean yearly temperature at sea level is at least 3° higher than that of the district of Innsbruck. It is inconceivable that the Hötting flora could flourish where it was found at a height of 1,150 m. over the sea under present climatic conditions. It pre-supposes a mean yearly temperature 2° higher than at present. As it was found formed between two glaciations, each implying a depression of the snow-line to the extent of 1,200 m. below the present, it affords clear proof of an oscillation of sufficient amplitude to be be regarded as interglacial."

Yet another interesting fossil occurrence of Rhododendron ponticum is that in the island of Skyros, Greece, in the Aegean Sea, east of Euboea, described by Gunnar Andersson,[§] from specimens preserved in the Natural History Museum, South Kensington. The leaves occurred in a considerable deposit of tufa, now situated in the purely Mediterranean climatic belt, where the precipitation is relatively slight and the long summer dry. The tufa is apparently of Quaternary age.

It would seem evident that considerable climatic changes are indicated for a geologically recent period by the fossil occurrences of this plant, both in Central and Southern Europe. A higher temperature in interglacial times than that now characteristic of Innsbruck must be postulated to account for its presence in the Höttinger breccia, while its discovery in Skyros shows that, at least in the northern part of the Mediterranean, for some period during the Quaternary age there must have been a far greater precipitation during the vegetative season than there is now. It is possible that this period more or less coincided with the glacial and interglacial periods of the Alps.

With the above considerations in mind, the discovery of Rhododendron ponticum in the Balkan Peninsula is seen to assume additional importance. Specimens collected by Skorpil have been described by Dr. K. Domin[*] as a new variety under the name of var. Skorpilii. The localities are given as "*in districto Malko-Trnovo*" and "*prope viam inter Midia et Sultan-Bachea,*" and the habitat is described in each case as "*in quercetis.*" Malvo-Trnovo (or Malko Tirnovo) is just on the Bulgarian side of the Thracian frontier and lies at an altitude of 1,312 feet in a basin surrounded by steep, stony hills. Midia is situated on the Black Sea in Eastern Thrace, and Sultan-Bachea (or Sultanbaghche) lies about eight miles to the south-west. This latter area was occupied by the Bulgarians for a short time in 1912 to 1913, but by the Treaty of Bucharest (1913) was returned to Turkey. After the Great War it was for a time in the possession of Greece, and by the Treaty of Lausanne has again reverted to Turkey. Domin describes his var. Skorpilii as differing from the type especially in having long, persistent flower-bracts. He acknowledges that the species is rather polymorphic and the differences are probably of slight import. A full Latin description is given.

In a paper recently received at Kew, R. Wettstein[†] reproduces an excellent photograph originally taken by Dr. F. X. Schaffer of Vienna in 1902, on the eastern slopes of the Istrandja Dagh (or Strandja mountains), in a valley near Urgas at about 100 m., and showing Rhododendron ponticum growing as undergrowth in a fairly thick wood. Urgas lies about ten miles north-west of Midia and the locality is thus intermediately situated between the two localities given by Domin. The photograph is very clear and leaves no doubt that it represents the plant as named, growing under natural conditions. A brief note concerning Dr. Schaffer's journey was published in the *Geographical Journal*, vol. xx., 1902, p. 651. He describes the northern portion of the Istrandja Dagh as consisting of mountains formed of Archaean rocks, rising to elevations of 4,000 feet, being deeply eroded, and covered with dense primeval forest. In the neighbourhood of Pineki (or Pinaka, almost due west of Midia), the mountains are lower, reaching only to about 1,500 feet; they consist of ancient rocks rising as inliers through the horizontal strata of early Tertiary limestones, which more to the northward only form a rim around the main mass, but in the south extend from the western margin of the mountains eastwards so far as the Black Sea. With the change of formation there occurs a change in the scenery, with the appearance of low ridges separated by narrow valleys with steep sloping sides. The forests have disappeared and the water supply is very deficient.

The above records are the earliest certain ones which I know for the occurrence of Rhododendron ponticum in the Balkan Peninsula, but Janka, in a letter which was published in the *Oesterr. Bot. Zeitschr.*, xxi. 287–288 (1871), and written from Burgas in September of the same year, apparently refers to this species. He says that owing to lack of time and to his having used all his drying paper, he was unable to visit a locality, which was pointed out to him as three miles distant, for Azalea pontica. This was in the neighbourhood of Karnabad and must really refer to Rhododendron ponticum and not to R. flavum, Don, to which Azalea pontica, L., is generally reduced.

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[*] Radde, "Grundzüge der Pflanzenverbreitung in den Kaukasusländern," 1899, in *Engler und Drude, Veg. d. Erde*, 3.

[*] *Atti soc. ital. di sc. nat.* xxi., 1878.

[†] E. Fischer in Baltzer, "Beitr. z. Kenntn. d. interglac. Ablag.," *Neues Jahrb. f. Min., Geol., u. Palaeont.*, 1896, I. Bd. p. 159. Also, Amsler, "De la flore interglac. de Pianico" in *Arch. d. phys. et nat.* 4 Periode, t. x. 1900.

[‡] "*Rhododendron ponticum*, fossil in den Nordalpen." in *Sitzber. d. k. Akad.* Wien, Math.-naturw. Kl. xcvii. 1888, and "Die fossile Flora der Höttinger Breccie" in *Denkschr. d. k. Akad.* Wien, Math.-naturw. Kl. lix., 1892.

[§] *Congr. Geol. Intern.*, Stockholm, 1910.

[*] Fedde, *Rep. spec. nov. regn. veget.* xiii., 25th July, 1914, p. 392.

[†] *Oesterr. Bot. Zeitschr.*, 1918, p. 301.

My Bulgarian friend, B. Stefanoff, has made several excursions into the northern parts of the Strandja mountains and has reaped a rich harvest. He has published an interesting geobotanical account of the district, dealing mainly with the woody flora, in the *Year-book of the University of Sofia*, vol. xx. (1924). Emphasis is laid on the mixture of Mediterranean and Pontic plants which occur in the formations described. In the mixed mesophytic woods, found especially in the lowest zones of the valleys, there is a strong development of Pontic trees and shrubs, Rhododendron ponticum occurring with Prunus Laurocerasus, Daphne pontica, Ilex Aquifolium, etc. In addition to these, Fagus orientalis (in abundance), Epimedium pubigerum, Smilax excelsa, and Vaccinium Arctostaphyllos also occur in the area, besides many interesting herbaceous plants. The Strandja mountains are the meeting place of the Pontic and Mediterranean floras in Thrace. The whole of the north Aegean coastal lands and those on the northern shores of the Sea of Marmora have an essentially similar flora of the eastern Mediterranean type, and the floristic divisions suggested previous to Stefanoff's work have been artificial or inaccurate. It will now be agreed that the Strandja mountains, although forming a relatively low range, have considerable botanical importance. Their geographical position, orientation, and topography have a greater bearing on problems of plant distribution than their altitude. *W. B. Turrill, M.Sc.*

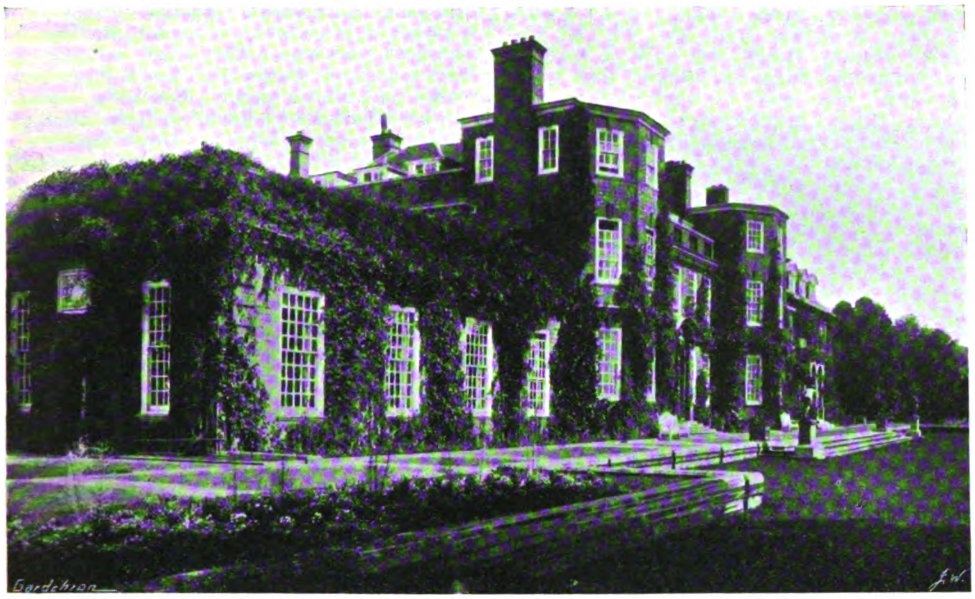

FIG. 164.—WALHAMPTON: GARDEN FRONT OF HOUSE AND TERRACE.

ROSA HUGONIS.

This free-growing, bushy Rose species produces an abundance of single, pale yellow flowers, a trifle paler than those of R. xanthina. It is best planted as a single specimen or in a bold isolated group. As a wall plant, it is effective, but is somewhat too free in growth for the purpose, and it resents extensive pruning.

Even during the winter, this species from Western China is effective in the warm reddish-brown tint of its stems.

The long sprays of blossoms are very beautiful for house decoration, and especially for the dinner table, as they are light and graceful. Although the plant is perfectly hardy, it is well not to plant it in a northern or eastern aspect. *Ralph E. Arnold.*

WALHAMPTON, HAMPSHIRE.

(See Supplementary Plate).

Walhampton, the beautiful Hampshire estate of Viscount St. Cyres, is a place of more than usual interest to horticulturists and several factors have contributed to its unique character, including its possession by keen garden lovers in both Lord and Lady St. Cyres, a climate so mild as to be almost sub-tropical, and its management by one of the most skilled gardeners in the country.

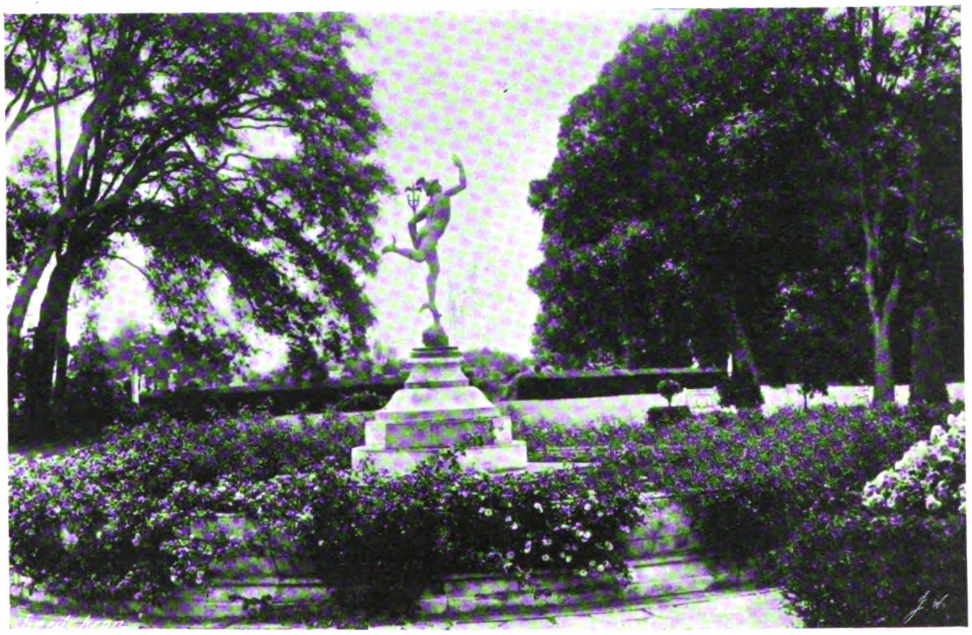

FIG. 165.—WALHAMPTON: MERCURY FOUNTAIN AND ROSE GARDEN.

The demesne is situated on rising ground overlooking the Solent, in the village of Boldre, about one mile from Lymington, eighteen miles from Southampton and the same distance from Bournemouth. It has been a residence of importance for a great number of years, and an old print published in 1680 gives a view of what was apparently a very important house, but this old structure was pulled down by Paul Burrard, and what forms the centre part of the present mansion was erected in 1711. The eastern portion was built by Sir Henry Burrard Neale in 1815, but long before this—in 1784—the pleasure gardens were laid out and planted. The views obtainable on the side facing the Solent are very enchanting; the water appears as a silvery streak, with the Isle of Wight beyond, the higher ground of this favoured island being plainly discernible in almost all weathers. The proximity to the sea and the southern latitude are largely responsible for the mild winters this part of the county of Hampshire enjoys, and fine belts of woodland serve to make Walhampton even more sheltered and cosy.

Walhampton needed but little attention from man to make it a most delightful pleasuance, and it is now the home of rare and interesting plants, many of which can only be cultivated elsewhere in this country under glass. To approximate its full beauty Walhampton needs to be considered in its entirety, for each part falls into an ordinary sequence with the others, broad park-land with woodland, and these in turn, with large stretches of water—for Walhampton contains so many as three large lakes—the water gardens in turn combining well with the dressed portions of the grounds and their trim kept lawns.

The visitor, on approaching the mansion, finds at once that he is entering a garden of an unusual character, for the outer walls are covered with a great variety of subjects that are but rarely met with out-of-doors. Amongst the plants used for wall adornment—many of them were in bloom in late May—are Hydrangea scandens, Clematis coccinea, Viburnum Henryi intertwined with Clematis tanguticus, the yellow flowers of the Clematis contrasting finely with the bronzy foliage of the Viburnum; Distylium racemosum, whose Mulberry-red flowers appear to be pressed flat against the evergreen foliage; Piptanthus nepalensis in full bloom; Buddleia auriculata, whose flowers, although inconspicuous and somewhat like those of the Lily-of-the-Valley, are most deliciously scented; Crinondendron Hookeri, Decumaria barbara, Ceanothus Veitchianus, and Carpenteria californica, and here also I saw the first out-door Roses of the season, the beautiful pale pink single, Mrs. Rosalie Wrinch, which was trained to one of the pillars supporting the entrance gates.

On a wall facing west a plant of Dendromecon rigidum was covered with its lovely, clear yellow blooms, and in a specially favoured nook, growing in an old lead cistern, were plants of Lapageria rosea and its white variety trained high up the mansion walls. Near by were fine, healthy plants of Salvia Grahamii which flowers from July to September; also the interesting Lotus Bean, Ceratonia Siliqua, an evergreen with beautiful red stems. These outer garden walls on the north side enclose a small lawn on which are pyramids of what appear on first sight to be perfectly trained Bays, but close inspection shows they are Evergreen Oaks. But the glory of this part of the garden in spring and early summer are immense standards of Rhododendrons Alice and Cynthia, and there are also two very large beds of these same Rhododendrons interplanted with Acer palmatum, that grows finer here than we have ever seen it elsewhere. All the Rhododendrons were flowering magnificently, but we have seen nothing of their kind to surpass these large standard trees

Another bed is filled with a variety of Cytisuses, including C. Dallimorei, C. Daisy Hill, C. Andreanus, C. biflorus and C. venusta, and the fine condition of the plants shows that the soil and situation are suited to them. This part of the garden leads through a very fine Italian Loggia to the south front (Fig. 164), with a fine terrace and broad lawn, across which is seen in the distance the Solent with the Isle of Wight beyond. The walls of the mansion are furnished with climbing plants in great variety, and never before have we seen Jasminum primulinum flowering so gloriously in the open and the plant at Walhampton impels regret that the species is not hardy generally in this country: Clematis montana rubens has grown to a great height and so has Clematis Lazurstern.

Other subjects trained or clinging naturally to the walls are Rose Mrs. Rosalie Wrinch, Buddleia Colvillei, Clianthus puniceus var. magnificus, Wistarias, which have grown to the top of the tall building, and are covered in flowers; Berchemia racemosa variegata, with foliage something like that of the Japanese Honeysuckle; Magnolia grandiflora, Trachelospermum crocostomum, full of flower buds, which, when expanded, are sweetly scented; Polygonum baldschuanicum, which flowers twice a year; Bignonia grandiflora, which has grown forty feet high and flowers grandly each year; Magnolia conspicua, Actinidia Kolomikta, of which a shoot was illustrated in *Gard. Chron.*, May 31, p. 313; the plant is some twelve to fourteen feet high and as much in width; the flowers are small and inconspicuous, but very fragrant; a companion plant of Actinida chinensis has grown to the extreme top of the building and is crammed with flowers that develop on the base of the young wood. This is one of the most magnificent specimens of its kind in the country and when in flower will be an imposing spectacle.

Vitus Henryi is included for its beautifully variegated foliage, and next to it grows the Pomegranate, and next to this Plumbago coerulea, which was breaking strongly for flower; Rhyncospermum jasminoides is another beautiful climber which grows here to perfection and Physianthus albens not only flowers but sets its fruits, several of which were hanging on the upper parts; Solanum jasminoides also finds a congenial home on this warm wall. Before leaving this part of the gardens mention may be made of a very fine Irish Yew on the lawn—an immense specimen. Various beds contribute to the gaiety of this portion of the grounds, and there is also a pretty water pool and fountain surrounded by flagged paths. In summer the beds are gay with pink Phloxes, Antirrhinum Nelrose, and Centaurea, whilst variety of shrub foliage gives colour at all seasons.

A glade leading to one of the lakes has wide borders of shrubs on either side, in which is planted a wealth of the best and choicest flowering and foliage shrubs and trees, including many that are seldom seen in the open in this country. Skilful planting has ensured pleasing colour association, so that these borders are interesting at all seasons of the year. Some idea of the effect may be gained from the list of the following plants, which are only a few of those employed: Japanese Maples, that grow to a large size and in their fullest perfection; Erica mediterranea, Diplopappus chrysophyllus (syn. Cassinia fulvida), Weigelia syriaca, Spiraeas in great variety, Berberis of many kinds, Azaleas, Bambusa aurea, Daphniphyllum glaucescens, Fabiana imbricata, Andromeda floribunda, Elaeagnuses of sorts, Olearia Forsteri, with yellowish green leaves that have a white under-surface; Pyracantha Gibbsii, Corokia buddleoides, Camellias, Veronica amurensis, which in summer has foliage of a lovely golden colour; Grevillea rosmarinifolia, and Grevillea sulphurea, both of which were finely in bloom; Corokia virgata, which was smothered with its pretty yellow flowers; Gleditschia inermis elegantissima, Senecio Haastii, S. Hunteri, Cytisus praecox, Magnolia Lennei, finely in bloom; Eucalyptus cinerea, Spartocytisus nubigens, with grey-green foliage, Eucryphia pinnatifolia, Davidia involucrata, Magnolia parviflora, Eucalyptus coriacea, Pyrus aldenhamensis, in bloom; Pittosporum Mayii, large bushes of this plant some fifteen feet high being covered with flowers from top to bottom; Phillyrea Vilmoriniana, which produces its flowers on the hard wood; Laurus salicifolia, Leptospermum Nichollsii, L. Chapmannii, Lonicera Maackii, Beschorneria yuccoides, several plants of which were in flower, the most conspicuous part of the inflorescence being the reddish bracts; Feijoa sellowiana, whose flowers are white outside and blood-red inside; Metrosideros lucida, Panax ferox, Cordyline Banksii, Plagianthus betulinus, which has racemes of small greenish-white flowers, something like those of a Spiraea; Styrax Obassia, Hoheria lanceolata, very free in flowering; Pittosporum Mayii Silver Queen, Viburnum pyrifolium, Colletia cruciata, which was blooming on every part of the large specimen, and Salvia Candelabrum, which sends up three-feet-tall spikes of mauvy-violet flowers. At the extreme end of these borders is a lake surrounded by trees and planted with Water Lilies, Nuphar lutea, and other aquatics.

The house may be approached from this part through the vista shown in the supplementary illustration and known as The Pleasaunce. The sundial shown in the illustration occupies a half-way position and it has four faces, enabling the time to be told by the sun at all hours when it is shining. The borders of herbaceous flowers include a great variety of subjects, and when the Roses have festooned the supports placed for them, the effect will be indeed beautiful. *G. F. T.*

(*To be concluded.*)

STANDARDIZED PLANT NAMES.

I have read a second time the amusing comments on *Standardized Plant Names* by one of your correspondents, on page 138 of your issue for March 8, 1924. We Americans are an ignorant and humourless people. We know this because we have been told so from the British Isles for three hundred years. We believe it, we admit it, we regret it. Yet there are some things to which we are inclined to hold fast. For example, when the American pioneers a century ago penetrated the wilderness to the Oregon region they found a native fruit that grew in bunches and had the blue colour, taste, and edible qualities of a wild Grape. Being hungry they ate it and they called it the Oregon Grape. When Oregon became sufficiently civilized to require a State flower she adopted this wild plant, in appreciation of the beauty of its Holly-like foliage, and in commemoration of the days of tribulation in the wilderness. There is a group of these species, West American and East Asiatic, which have acquired a place of honour in British and American gardens. They are not Grapes: they are not Barberries in the ordinary sense of that word. Botanists disagree whether their Latin name shall be Berberis, Odostemon, or Mahonia. The compilers of *Standardized Plant Names* adopted for this beautiful group of shrubs the common name "Hollygrape" because it combined with usage a little history and a little sentiment. Will not our British cousins accept from us this American common name of a group of plants somewhat intertwined in American history.

Your unnamed correspondent is in error regarding the name Wisteria. Many American botanists use the Latin name Kraunhia in place of Wisteria, because Kraunhia was published ten years earlier, but *Standardized Plant Names* adopted Wisteria as both the Latin name and the common name of this genus, because the name Wisteria is thoroughly established in horticultural usage.

Standardized Plant Names contains about 40,000 entries. In choosing the names of horticultural varieties the compilers were guided by considerations of usage, priority, suitability, brevity, and accuracy. In some cases they gave new English names to horticultural varieties bearing complicated Latin names. For example, one of the many varieties of Boston Fern previously called Nephrolepis exaltata bostoniensis elegantissima compacta cristata was rechristened Cockatoo, to the great relief and joy of admirers of the Boston Fern.

In the *Gardeners' Chronicle* for July 30, 1921, page 64, is an illustration of a beautiful new hardy Fern which had received the Royal Horticultural Society's Award of Merit. The name given under the figure of the new Fern was Polystichum angulare divisilobum plumosum densum erectum! As a member of the nation that is sometimes accused of attempting to make culture "hum" I submit that British ingenuity ought to be able to devise a better name than this, something standardized. If there is not leisure for the invention of an English name that is dignified and elegant, may we not hope for something that at least is short and snappy? *Frederick V. Colville, U.S.A. Dept. of Agriculture, Bureau of Plant Industry, Washington.*

CULTURAL MEMORANDA.

WINTER-FLOWERING BEGONIAS.

The earliest struck Begonias of the Gloire de Lorraine type will require to be shifted into pots of small dimensions. They should be grown on in an intermediate temperature. Water the plants very carefully, using soft water or rain water only. Syringe or dip the plants occasionally in XL ALL insecticide as a preventive of the Begonia mite. For late-flowering, cuttings may still be inserted. As a succession to the Lorraine type a batch of Gloire de Sceaux, with its rich, bronze foliage and rosy-pink flowers, is well worth growing

Amongst the best of the hybrid varieties of Begonias which may be propagated now are the following:—Emily Clibran, double, salmon; Optima, single, salmon; Scarlet Beauty, double, vivid scarlet, and the old popular variety, Elatior, semi-double, rosy-carmine. *C.*

MR. F. KINGDON WARD'S EIGHTH EXPEDITION IN ASIA.

III.—Across the Himalaya.

Two species of Meconopsis grew on the alpine slopes below the Nathu La. The one first noticed, at about 10,000 feet altitude, had already sent up a large rosette of yellowish-green leaves, covered with barbed, orange-coloured hairs. Some of last year's haulms, from three to five feet high, were still erect. On the alpine turf slopes, and amongst boulders, between 13,000 ft. and 14,000 ft. altitude, this plant was abundant. It must be M. robusta, the yellow-flowered species often grown in gardens under the name M. nepalensis—which it is not. (M. paniculata seems to suffer the same affront). The second species was only met with above 12,000 ft., and was not so common. There was no sign yet of young plants—only last year's singled-flowered scapes, one or two. This I think must be M. simplicifolia, a plant of fairly wide distribution in the eastern Himalaya.

On March 23 we began the climb to the Nathu La, 14,500 ft., in fine weather. This pass is not over the main Himalayan range, but takes us down into the Chumbi Valley, at the head of which lies the Tang La, over the Great Himalaya. The Chumbi Valley is really the head waters of the Ammo Chu, which, like the Tista, runs down to the plains of Bengal and the Ganges.

I have already stated that tree growth ceased between 12,000 and 13,000 feet, but on the way up to the Nathu La from the frozen lake, we saw thickets of scrub Rhododendron, comprising two species. One, a bush five to ten feet high, was like R. Traillianum—at least the foliage was; it is evidently one of the 'Lacteum' series. The other, a low-growing, gnarled species, scarcely rising three feet from the ground, its stout branches interwoven, had the under leaf surface covered with a loose russet felt; evidently one of the 'Taliense' series—R. Wightii perhaps. Besides these, there were stripes and patches of bush, all covered with snow — Potentilla fruticosa, Juniper, Berberis, Spiraea, and turfy slopes, where two species of dwarf Rhododendron formed a close carpet. One of these, with rather large leaves, very aromatic, was either a 'Cephalanthum' or an 'Anthopogon.' The other had bristly shoots and leaves, after the manner of a 'Saluenense,' and a leafy calyx; but the three—or four-flowered truss, and the small ovoid capsule took one to 'Lapponicum.' Yet the leaves, with scattered, greenish scales on the upper surface, and a very few small red scales on the under surface, were certainly not like those of any 'Lapponicum' known to me.

Above Changu we found a good deal of snow, lying three or four feet deep on sheltered slopes; and though the great peaks were all hidden in cloud the lower peaks which surrounded us were white with deep snow. It was in fact the depth of winter up here. The Rhododendrons all hung their closely-curled leaves straight down, and there were few signs of spring as yet. Only Primula petiolaris, in its most dwarf form, still flowered bravely under the lee of some rock, almost to 14,000 feet.

After crossing the Nathu La we were in Tibet. The excellent stone-paved causeway from Gang-tok to the frontier ceased abruptly. We descended steeply through mud and snow by a bad path; but it improved lower down when, at 13,000 feet, we entered the Abies forest. In the afternoon it snowed heavily. The alpine valleys of the Nathu La are very like those of north-western Yunnan, and the type of vegetation met with is, of course, the same. Many identical species are found in both. The Himalayan valleys, like those of Yunnan, have been glaciated, but probably a long time ago—they do not show it so clearly as the Chinese valleys do.

Next morning, after a sharp frost, we marched on through Fir forest with scattered Rhododendron undergrowth, where snow still lay deep under the trees; but on the south slopes there was more of an open park, with scattered bushes — a saffron-yellow Piptanthus just coming into flower, Cotoneaster carpeting the rocks, dwarf Juniper, Rosa Moyesii and a lovely, leafless Viburnum covered with knobs of rose, pink or white blossom, fragrant as Jasmine. Every damp gully was sheeted with mauve Primula petiolaris (I saw a few white-flowered plants), but lower down, on the open sward, P. denticulata was flowering bravely, flush with the ground. It varied much in colour; indeed mauve seems to be a very unstable colour in the genus—witness the two species mentioned, P. involucrata, P. pulchelloides, P. Wardii and others.

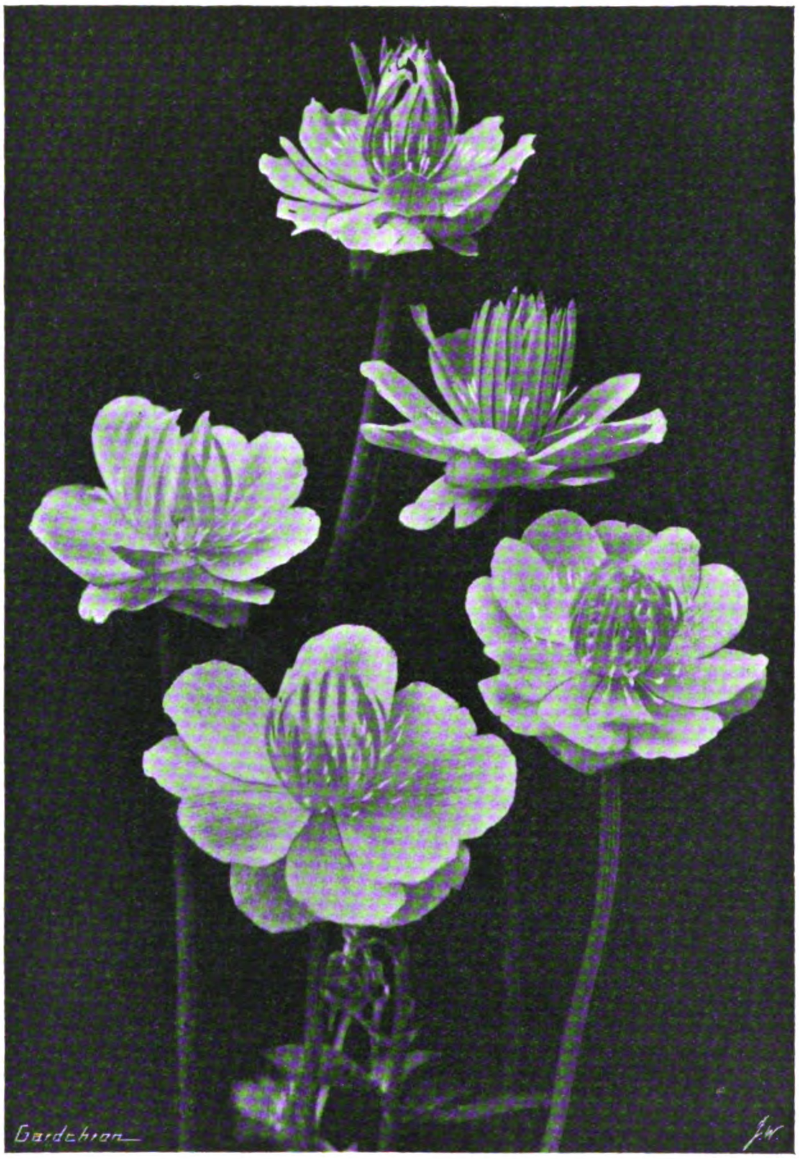

FIG. 165.—TROLLIUS LEDEBOURI VAR. GOLDEN QUEEN.

R.H.S. Award of Merit, June 11 (see p. 367).

We had to descend 2,000 feet into the Chumbi Valley where we found the crags more or less forested with Picea and Larch (Larix tibetica) above, and with bushes and Pine woods below. (A species of Pinus with rather large cones and five needles; P. excelsa ?)

The climate of the Chumbi Valley is much drier than that of the Sikkim valley, as is proved at once by the great change in the vegetation, and the substitution of Conifers for broad-leaved trees. In the afternoon we reached Yatung (10,000 feet), and the cold breath of the Tibetan plateau was upon us.

Next day, in brilliant weather, we rode up the rocky valley, past the old Chinese wall and the sacked village, passed the proud little monastery of Dochen, and into the granite glen. Spring was in the air, and we enjoyed the scenery. Grey cliffs and dun coloured grass slopes, slashed here and there with green Pine woods and crested with snow, under the turquoise sky, made a goodly feast. And then there were the dangling scarlet fruits of Rosa Moyesii, the silver "pussies" of Willow, and the young twigs of a Barberry, red like Chinese lacquer, adding a flush of colour to all that ocean of leafless scrub which clothed the steep flanks of the valley.

Presently we emerged on to a level plain of grass, and a mile further on entered the granite glen. Here the river crashed amongst the boulders, and we mounted rapidly. The mules banged our steel boxes against the projecting cliffs as they stumbled and slid on the steep cobbled paths; and down-coming caravans, laden with wool, threatened to force one or other party over the precipice into the raging torrent.

The previous articles by Mr. Kingdon Ward were published in our issues of April 12 and May 17, 1924.

The glen was filled with forest—Picea, Juniper, and Birch. Higher up, Abies replaced Picea, and Rhododendrons, hitherto scattered, now thickly clothed the boulder slopes, where a good deal of snow still lay. We halted for the night at a tiny village called Gautsa, 13,000 feet; but there was a comfortable bungalow here. The glen still rose narrowly before us, but we could see the deep snow lying on the open mountain tops beyond. Curtains of blue ice draped the cliffs on either side, and the torrent roared in cascades down the glen. The boulder screes facing north were still thinly forested; but those facing the sun were clothed with a solid scrub of frozen Rhododendrons, R. triflorum, R. Wightii, R. Thompsonii, and another with the leaf of a 'Lacteum.' R. Wightii usually grew perched up on the huge boulders which strewed the narrow floor of the glen. I noticed that the adult Rhododendrons usually promised to flower this year in inverse ratio to their efforts of the previous year. Of course there was no hint of flowers yet, the bushes were, as noted, all frozen. Wait! There was a curious thing about R. triflorum. In a few cases the flower buds had actually opened. Some flowers were fully expanded, others just pushing out. The bud scales still remained in place, green. And in a night the trusting flowers had been simply blasted as they stood. Surely they were but foolish virgins, and their lamp of life had burnt low for lack of oil: Spring had beckoned to them falsely, and they had heeded; then snow, frost, and wind had cut them down. Only a few bushes had been so foolish; but no doubt amongst the myriads of bushes in the glen quite a number had met with the same fate. They would not flower again this year. The leaves of the 'Lacteum' Rhododendron were simply screwed up into spills, but those of the other species, though hanging straight down, were not so drastically curled.

On March 26 we continued up the granite gorge by a steep, cobbled path. The forest grew thinner and thinner, and finally disappeared leaving the screes clothed with scrub only. Presently the glen opened out, we climbed high up the bare hillside, and half-an-hour later we were on the Tibetan plateau. As we turned a shoulder, the snowy pyramid of Chomohlari, over 23,000 feet, came into view. It was an inspiring sight, which the plateau certainly was not. Not a tree, not a bush, nothing but bare rock, snow, and burnt grass, and in the valley bottom where the stream now flowed sluggishly, were fathoms of mud. We rode on mile after mile, till at last the Dzong of Phari hove in sight. We passed herds of yak, apparently grazing, though what they found to graze in that bitter wilderness I cannot imagine. The wind was at our backs, but even so we found it trying enough. But the worst was yet to come.

After a night spent at Phari we set out to cross the Tang La, over 15,000 feet. This pass, though well to the north of the great Himalayan peaks, is nevertheless on the water-shed between the Indian and Tibetan drainage systems. In other words the Amme-chu, whose source is at the Tang La, rises behind the Himalaya. Once over the Tang La we were properly on the Tibetan plateau; and in March it is no fun. The 22-mile stage between Phari and Tuna was not unpleasant. A huge gravel plain stretches north from the Tang La, over which sweeps a perpetual freezing wind. Mile after mile we rode, parallel to a fine range of snow mountains which here forms the Bhutan border; and all the while the great peak of Chomohlari overshadowed us. We reached Tuna at five o'clock in the afternoon, and found shelter from the wind in the rest house. The only fuel was yak dung, which gives out a fair heat and an acrid smoke, the latter tainting our food.

Next day, March 28, we continued over tha gravel plain, at 15,000 feet altitude, but descending slightly; and at last vegetation began to appear—first tufts of withered grass, which, from a distance, gave the impression of a continuous carpet; then scattered cushions of Arenaria polytrichoides and Androsace Chamaejasme, with clumps of a flannel-leafed Composite like Edelweiss. Barren and frigid as the plain of Tuna is, however, it must not be supposed that it is entirely devoid of life. On the contrary. Once a herd of *kyang*—the wild ass of Tibet, approached within 100 yards of us. We also saw three gazelle and numerous small birds, including a pretty little owl, which sat up on a *mani* pyramid and looked wisely at us. At the far end of the plain was a fair sized lake teeming with geese and duck; and here, at the wretched village of Dochen, we halted for the night. The wind was now worse than ever, and a colder place than Dochen I scarcely remember. However, we were now only five marches from Gyantse, which is little over 13,000 feet, and there conditions will begin to improve. Besides, spring will be here soon. *F. Kingdon Ward.*

INDOOR PLANTS.

HYDROCLEYS COMMERSONII.

Vespuccia Humboldtii, the old name of this tropical aquatic plant, commemorates the memory of Amerigo Vespucci, after whom America is named. And yet, how few there are, who, admiring the delicate cup-shaped sulphur-coloured flowers, remember the interesting connection.

Given the temperature of a warm greenhouse, or stove, the cultural requirements of this aquatic are not exacting. Three inches of soil and ten inches of water in a tank will suffice for its successful cultivation.

The ovate, coriaceous leaves are two inches in diameter and float on the surface. The flowers are erect, and held clear of the water by one inch or more. They are coloured light yellow, deeper in tone at the base of the perianth, where the dark filaments at the base of the staminal column are conspicuous, showing like dark rays on the corolla tube. *F.*

THE ROSE GARDEN.

DISBUDDING AND MULCHING.

Roses are opening fast and the plants will need to be constantly watched for pests and sprayed immediately they are detected. Disbudding will naturally require attention where specimen flowers are required, and even from the decorative point of view thinning is to be recommended in moderation where buds are very numerous. Remove all flowers as they fade, and as soon as all the flowers of the branch have expanded cut the latter back to the most prominent vertical eye. Remove all sucker growths as they appear and use the hoe vigorously to conserve soil moisture. If watering has to be resorted to, as may be necessary in the case of newly planted bushes, water only in the early morning or evening, give copious supplies, and mulch immediately to prevent loss by evaporation. Standard and Pillar Roses should also be examined to see that they are properly secured to their supports. Rambler Roses of vigorous type frequently make many more growths than are required; all weak shoots should be removed, and those which are needed for the future furnishing of the plant tied so that they can be laid aside with ease for the removal of old wood after flowering. Plants which are not making sufficient growth to furnish the space allotted to them may be assisted to develop by giving the roots occasional light dressings of sulphate of ammonia, but the use of highly stimulating manures is not advisable except for special purposes. *W. A.*

NOTICES OF BOOKS.

Descriptive Labels for Botanic Gardens.*

This very admirable booklet has been prepared by Mr. Humphrey Gilbert-Parker, Director of the Cambridge University Botanic Garden, and contains specimen labels of some sixty subjects suitable for appending to plants in botanical collections. The following, taken at random, is a typical example:

> *Family*, Rosaceae.
>
> COTONEASTER BACILLARIS, *Wallich.*
>
> Native of the Temperate Himalaya, where it ascends to an altitude of 10,000 feet. The large-leaved species of *Cotoneaster* are often mistaken for "Thorns" (*Crataegus*), from which, however, their entire leaf margins and the absence of spines at once distinguish them. The long, slender branches of this species make excellent walking sticks; hence the trivial name *bacillaris*, from Latin *bacillum*, a small staff or wand. A masculine form of this word (*bacillus*) is used by bacteriologists as a kind of genera name for rod-shaped bacteria. The fruit of this species is almost black when ripe. The allied *C. frigida*, Wallich (also Himalayan) has bright red fruits.

Such information is, of course, desirable, and from an educational standpoint alone is to be commended, for it creates interest, is understandable and pleasurable to read by anyone.

The author, since March, 1921, has been in charge of the world-famed collection of plants at Cambridge and the labels, of which representations are given, are similar in typescript to those employed in the Botanic Garden there.

The Preface contains some very useful information on the labelling of specimens and the preparation of the weather-proof labels. The size of the booklet is convenient and the printing is excellent. Considering the care with which the publication has been prepared and the information contained therein, the price is ridiculously low.

Garden Irises.

Carried along on the flood of gardening books, which is such a remarkable feature of the present century, there comes to the reader now and again, and all too seldom, one that bears the impress of knowledge derived from long and persistent first-hand observations, sometimes of a particular family of plants, sometimes of a number. Of such is the modest book of 250 pages before us,† which, it is understood is the forerunner of a series of handbooks designed to be of practical use to gardeners.

It is probably beyond the wit of man to compile a handbook on a particular genus of plants which shall at once be of value to students of that genus and yet be intelligible to those possessed of no more than a rudimentary knowledge of it, or of use to those who look on flowers much as an artist looks on the colours on his palette—as a means for the expression of certain effects. We can recall no writer who has succeeded in such a task. The author of this handbook wisely makes no attempt to compass it. He does not write for babes and sucklings, but holds a reasonable balance between the botanical and horticultural point of view, and assumes in his readers—as an investigator of his calibre is entitled to assume—an elementary knowledge of the genus Iris. In his own words: "The present volume is intended for gardeners, though it is hoped that the information as to the distribution of the various species, the speculations as to their affinities, and the botanical details which in certain cases must be understood in order to separate closely-allied species, will prove no less welcome than the hints as to their cultivation, which are the results of an experience of some twenty years. Enough information is given about all the species which are at all adequately known, to enable them to be recognised and cultivated with some chance of success. The treatment of the innumerable garden hybrids has necessarily been more difficult. . . . It is obviously impossible to describe every one, and equally difficult to decide which are the best varieties and those most worthy of description. Moreover, any list compiled to-day will necessarily be out of date a few years hence."

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* *Descriptive Labels for Botanic Gardens.* By Humphrey Gilbert-Carter. Cambridge University Press, London. Pp. 79. Price 1s. 6d. net.

† *A Handbook of Garden Irises.* By W. R. Dykes. Martin Hopkinson and Co., Ltd., 14, Henrietta Street, W.C.2. Price 12s. 6d. net

Here we have the key to a work which can hardly fail to be of real use to the many keen gardeners whose interest in the Iris is deep, and whose pockets are not deep enough to warrant the possession of the author's monograph on Iris. The cultural notes on one species or variety and another should be of inestimable value to those who have not been so thoroughly through the mill of experience as has the author, and the careful exposition (page 47) of the practical handling of the Juno section of Irises and the raising of the section from seed—all obviously the outcome of experience—is a capital example of the fruit of patient investigation placed at the reader's disposal.

In view of the increasingly important place occupied in modern gardens by the June-flowering garden border Irises, the author is no doubt justified in including a chapter on the group. The chapter is a concession to horticulturists of the present day, who should derive much help from the author's catholic list of the finer bearded Irises. But however carefully and judiciously compiled, such a chapter must of necessity be "dated," and will be obsolete in years to come while the work is still a standard book of reference. Some flowers of hybrid origin survive through the ages, but their number is few, and in a group such as the bearded Irises, on which florists of four nations are now concentrating their attention, the changes are likely to be numerous and startling.

Much ink has been spilled in the consideration of the right time to move rhizomatous Irises, but in a brief but invaluable chapter on cultivation, the author's conclusions are set forth. They are those of a keen observer. "The golden rule is to look at the roots. It is not necessary to dig up the plant in order to do this. The soil can be carefully scratched away from the base of the leaves and then it is usually quite easy to see whether new roots are being formed. If they are it should be safe to move the Iris."

Four species—arizonica, Farreri, Hoogiana and mesopotamica—published after the issue of the *Genus Iris* are referred to in this handbook. The author is rightly enthusiastic about I. Hoogiana—the best of the Regelia section—which was originally published in the *Gardeners' Chronicle* (1919, vol. 1, p. 217). The other three are not of much account, and I. mesopotamica is not to be confused with the plant sent out by Leichtlin under the same name.

The author's views on the critical differences between I. Kæmpferi and I. lævigata are well known. The specific points of distinction are again clearly set out and the conclusions reached by the monographer of the genus seem irresistible.

There is a practical chapter on the diseases of Iris, and an invaluable aphabetical list of species, giving height, time for planting and time of flowering. The book is worthy of Mr. Dykes; it is singularly free from typographical errors, and the illustrations are excellent. In general, the book reflects credit on a young and enterprising publishing house.

VEGETABLE GARDEN.

CAULIFLOWER.

Brassica oleracea botrytis cauliflora.

The Cauliflower is one of the most highly esteemed vegetables, but strange to say, it is one of the least nutritious, and its perfection consists not so much in the full development of the plant or its fruit, as in the arresting of the processes whereby these are brought to maturity. The more completely the arresting has been effected the more perfect the Cauliflower becomes.

The question naturally arises where and when were the processes first discovered? The question is not easily answered. Some have supposed that because Cauliflowers are at present grown to the highest perfection in southern Italy, they very probably have originated there, but other writers hold that the plant has a more eastern origin, and that the Island of Cyprus was the source from which Europe was first supplied. Thus Miller writes, "The Cauliflower was first brought to England from the Island of Cyprus, where I have been informed they are in very great perfection at present; but it is supposed that they were originally brought thither from some other country. There is an old variety named Late Asiatic which is still in cultivation. Is it safe to assume that the same name indicates the country of origin? Most of the old writers mention it to have been brought from that Island, *i.e.*, Cyprus, to the different parts of Europe, so that from thence all the gardens in Europe have been supplied; and altho' this plant was cultivated in a few English gardens long since, yet it was not brought to any degree of perfection till about 1680, at least not to be sold in the markets." (In this connection it is worthy of note that Jas. Justice in the *Scots' Gardiners' Director*, 1754, states: "For a Kitchen Gardiner to have very early Collyflowers in this country for the Market, where a Gardiner cannot draw more than one shilling, or two at most, for a Flower, is not worth pains of having them so early"). To resume from Miller: "Since the year 1700 this plant has been more improved in England than in any other part of Europe. In France they very rarely have Cauliflowers till Michaelmas; and Holland is generally supplied from England. In many parts of Germany there was none of them cultivated till within a few years past, and most parts of Europe are supplied with seeds from hence." Things have changed very much in the past two centuries, but some of us still remember the famous fields of Cauliflowers which were grown in the south-eastern suburbs of London fifty years ago.

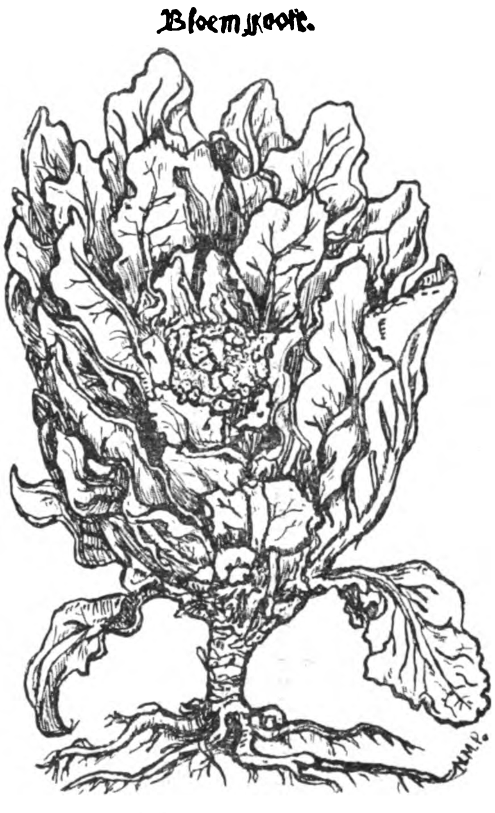

FIG. 167.—THE CAULIFLOWER: Reproduced from the Herbal of Dodonaeus, 1618.

Since Miller wrote the above France has taken up the culture of this vegetable in whole-hearted fashion. Many valuable varieties have been raised in that country, of which the following are the most esteemed in Britain. Conqueror, a large, forcing variety; Early Paris (Salomon), Half-Early Paris (*demi-dur*), Lenormand's Short Stem, all good summer varieties, and All Season's, a comparatively recent introduction that is fitly described by its name. Holland has produced the Walcheren, a large, solid, and most useful late variety, and Early Dutch which has many of the best points of the Early London; and instead of obtaining their supplies of fresh Cauliflowers from England, the Dutch grow very large acreages of them, particularly in north Holland, which find a ready and profitable sale in the markets of adjacent countries. Denmark has entered the lists and developed a form of the Early Dwarf Erfurt which has been named Snowball and which in hot climates, like the United States, has been a very great success. Another variety of the same type but larger and rather later, named Dryweather, does equally well under similar circumstances. Germany has atoned for past neglect by giving to the world the Early Erfurt, from which many sub-varieties have been raised, ranging from Snowball, an extra early, dwarf variety with very few leaves, the perfection of a forcing Cauliflower, to the large Early White Erfurt, a robust variety adapted to general cultivation. The Erfurt gardeners are veritable Cauliflower cranks who willingly pay fabulous prices for reliable Erfurt-grown seed.

The foregoing list embraces all the noteworthy varieties of the northern section; the illustration (Fig. 167) copied from the Herbal of Dodonaeus, 1618, if compared with the illustrations in seedsmen's catalogues, shows the great improvements that have been made in the meantime. Dodonaeus makes special mention of the Cyprischer variety; it was very probably the parent of the Mediterranean section.

The southern or Mediterranean varieties form the most important class from the British standpoint, for, since the advent of Veitch's Autumn Giant, the Cauliflower trade has been changed completely and the consumption of it as a table vegetable has gone up by leaps and bounds. When the public have had a surfeit of summer Cabbage and Vegetable Marrow, they gladly turn to the more appetising and satisfying dish which the Cauliflower provides.

Beginning with Cyprus and Egypt the Mediterranean section includes Candia (Crete), Malta, Algiers, and southern Italy, particularly in the volcanic zone. It will thus be seen that the Cauliflower, to attain its greatest perfection, needs abundant supplies of heat and moisture. If Cauliflower growers always remembered these facts there would be fewer failures to chronicle. Of the fifteen varieties and sub-varieties now offered, the Candia Early Dwarf heads the list, both for earliness, appearance and quality; the Maltese Dwarf Early (syn. Mont Blanc) is a good second. Algiers furnishes two varieties, the Early Dwarf (sometimes sold as Eclipse), an early, very large head, that should be cut as soon as it is fully formed, and Late Giant, popularly known as Winter Mammoth, a well protected, very large and hardy variety.

The Italian varieties follow, beginning with Primus (Improved Eclipse), a dwarf, very early strain, which in its turn is followed by Secundus, also known as Purity, a variety which owes its tenderness and purity of colour to its wealth of protecting foliage (in other respects it does not differ from Veitch's Autumn Giant). Of the last variety there are several different strains, in some of which the difference consists mainly in matters of earliness and height. Ne Plus Ultra is one of the earliest and most reliable; Autumn Giant Improved is a mid-season selection, while the type variety, latest of the three, is, in some respect, the most generally useful.

The very latest section is that represented by the Veitch's Self-protecting (an error in nomenclature, as it is a true Cauliflower known as Late Italian Giant), this is followed by Late Malta Giant, noted above, and the list closes with Late Metropole, a veritable giant, perfectly hardy and producing (in Italy) heads that often weigh eight kos (nearly eighteen pounds). *S. B. Dicks.*

FRUIT REGISTER.

APPLE GOLDEN PIPPIN.

This variety of Apple was one of the first I had any experience with, and *Pomona's* remarks on page 315 are, for that reason, especially interesting to me. Upwards of sixty years ago, when I was an apprentice at Crimonmogate, Aberdeenshire, under Mr. Jas. Esson, where the Apple was not satisfactory as a standard or bush, this variety amongst others, as fan-trained trees, was grown on south walls, and splendidly trained specimens they were. I well recollect the trees carrying full crops of fruit of excellent quality which were highly valued for their excellent flavour and good appearance. Cox's Orange Pippin was not included amongst the varieties grown. *T. Coomber.*

LARGE APPLES.

The recent notes in the *Gardeners' Chronicle* on Large Apples have been very interesting to me, and as I maintain a good large Apple is better than a good small one, especially from a utility point of view as regards cooking, I am prompted to write on some large varieties I have had experience with.

Peasgood's Nonesuch was raised at Stamford, not far from here. Our trees of this sort are large, open bushes, and rarely fail to produce a crop, some of the fruits weighing twenty ounces each. I am aware they can be grown heavier than this, but twelve fruits weighing twenty ounces each will make a fairly good dish for exhibition. This variety with me produces two differently shaped fruits on the one tree, one conical and the other flat, but the conical ones always weigh the most, and seem more solid. Last season the fruits coloured deeper than I have known them do before, but the variety is always attractive at exhibitions if only for its symmetrical shape and bright colour.

Norfolk Beauty is, in my opinion, a very fine Apple and may be grown as large and heavy as Peasgood's Nonesuch. The colour is a very bright yellow, the skin clear, with an occasional streak of red. It is at its best in October and November, and because of its bright colour, is a more pleasing Apple than Warner's King, fine though that variety is. It does not fruit every season, but should be grown all the same. The tree is a strong grower, and has large, healthy, bright green foliage.

Belle de Pontoise is another variety that does well in these gardens. It is flattish, with rather prominent shoulders, and is green with an intense dark red colouring on the sunny side. The variety has proved a fairly regular cropper, even last year when Apples were scarce, and will keep until April. It should, in common with most late Apples, not be gathered too soon, and it will then keep quite sound. Fruits have turned the scale at nineteen ounces each, and a well coloured dish of this sort is very attractive at shows.

Hambling's Seedling is, I believe, better known in the North of England than it is in the south, but there is no tree that I like better as a grower, on the bush style, at any rate. It is very symmetrical in shape; the wood is thick and short jointed, the foliage large and leathery, and the buds very prominent. Like the foregoing variety, it is a late keeper. The skin is dull yellow, flecked over the surface with small brown specks, which rather adds to its good appearance. It does not attain quite such a large size as some of the others I have mentioned, but is a very heavy Apple, and a beautiful round shape. It is a good cooker, and the flesh is rich and sweet. The tree is a fairly regular cropper, and should be included in every collection, if only for the pleasing appearance of the tree itself.

The Queen is a large, flattish variety, slightly ribbed, and coloured greenish-yellow, heavily splashed and striped with crimson. This is a fine Apple when well grown, and one that makes a very attractive dish on the show table. The tree is a strong, healthy grower, with rather large foliage, and crops regularly when well established. The fruit is of somewhat soft texture, and requires careful handling when gathering it to prevent bruising. It fruited well here last year when many other varieties failed. It is in use during the last three months of the year. This variety always adds value to a collection because of its bright colouring and good size.

Rev. W. Wilks is a more recent introduction than any of the foregoing and is one of the finest Apples raised for a long time. The fruit may be grown to a great size. It is a well shaped Apple, and the colour is bright yellow, somewhat like Norfolk Beauty. The flesh is white and sweet and cooks splendidly. The tree crops in quite a young state and will continue to do so if well looked after. This variety should be grown in an open, sunny position. *R. W. Thatcher, Carlton Park Gardens, Market Harborough.*

HOME CORRESPONDENCE.

Heeria elegans.—Among the plants exhibited at the Chelsea Show and described among the hardy flowers is one called "Hieria" elegans. This I take to be a mistake for Heeria elegans, and it would be of considerable interest to know if this species of Heeria is really hardy. It is a native of Mexico, and, although appearing in the *Index Kewensis*, is not described or even named in ordinary works of reference. Only two species are so described and these are both said to be stove plants. It is, of course, possible that H. elegans may be hardy, although coming from Mexico casts a doubt upon it being capable of withstanding our winters. Should it be hardy it ought to be an acquisition, and perhaps someone can tell me something more about this plant, which has rose-purple flowers. *S. Arnott.*

Change of Colour in Sweet Williams. There is just a possibility of bud sporting in Sweet Williams, as in the case of various florists' flowers, while those that are grown in proximity in gardens are frequently crossed by insects; but this would be occasional, rather than of constant occurence, as has been told to Mr. Nicholson (p. 316). I would suggest that this apparent anomaly had arisen through the accidental mixture of seeds. For instance, a few seeds might hang about in seed-cleaning machinery and get mixed with the next lot put in the machine. A variety of Sweet Williams, named Sutton's Harlequin, has been in commerce for some years, and the prevailing colours are white and red, alternating in equal or unequal proportions. Grey also shows to some extent in the young flowers, so that a good sized plant or a group presents a strange and conspicuous admixture of colours. I mention the variety Harlequin with the idea that it may elucidate how it is possible for the belief of a sudden change of colour to have arisen. Of course, it is always open for one in doubt to make the experiment by dividing plants with red flowers. There is a double-crimson variety of the Sweet William named Magnificus, and this must have been propagated by offsets for many years, but I have never seen a double-white one, the crimson evidently being fixed. *J. F.*

Heavy Rainfall at Mill Hill.—More than three-quarters of an inch of rain was registered in these gardens from Friday evening, May 30th, to Monday evening, June 2nd. *James A. Paice, Sunnyfields Gardens, Mill Hill, N.W. 7.*

Disastrous Whirlwind at Rotherham.—Mrs. Althorpe's gardens at Dinnington Hall, Rotherham, were visited by a terrible whirlwind on Wednesday evening, May 21, at about 6.45 p.m. Heavy rain was falling and the heavy atmosphere suggested the approach of a thunderstorm. Suddenly, with a roar, a whirlwind swept over the estate from the S.S.E.; coming over a field south of the gardens it uprooted several big trees, it swept through the orchard, tore up several valuable fruit trees laden with bloom and stripped the branches from others. It then passed over the 14 feet wall into the kitchen garden, where, within the four walls, it seemed to gain in strength; overturning trees and bushes in its path it reached the Tomato house which it lifted bodily, twisted round and then dashed to the ground, a hopeless wreck. Beehives about twelve yards to the right luckily escaped although the roofs of all of them were blown away. Vineries and Peach houses suffered severe damage to glass and ventilators; the top ventilators of the Peach house were hurled over 100 yards away. Had not the side ventilators been securely fastened down, no doubt the roof of both vineries and Peach house would have been lifted. The whirlwind cleared a path 60 to 65 yards across the garden and passed on to the village in a N.N.W. direction, doing much damage to property. It would be difficult to give an adequate idea of the terrible noise of this windstorm as it passed over, or to describe the wreck it left behind. Those who have seen the gardens since the storm are amazed at the amount of damage done in this south Yorkshire garden which is fairly high above sea-level. *W. R Cheetham, Dinnington Hall Gardens, Rotherham.*

Crushed Crocks in Cypripedium Compost.—In the *Gard. Chron.* of June 14, 1924, page 356, Mr. J. Collier, in his notes *re* compost for Cypripedium states:—"A suitable compost consists of equal parts good fibrous loam, with the earthy particles shaken out, Osmunda fibre cut into rather short portions, and Sphagnum moss, mixed with sufficient crushed crocks to render the whole porous." Surely the crushed crocks are not added solely to render the above compost porous! What little experience I have had with Orchids has been with small private collections, and I have found that crushed crocks always act as a means of retaining moisture, and probably Mr. Collier has long since noticed that the roots adhere tightly to the crocks when the plants are being repotted. *R. J. Platten, Bournville.*

SOCIETIES.

SOCIÉTÉ NATIONALE D'HORTICULTURE DE FRANCE.

The Spring Exhibition of the above Society took place, as usual, at Cours-la-Reine, Paris, from May 23 to June 1.

It was called the "A. Hardy Centenary Exhibition" in honour of the great horticulturist, M. Aug. Hardy, who was for so many years the premier vice-president of the Society. He was born in Paris on the 4th April, 1824, his father being at that time head gardener at the Luxembourg; and he died at Versailles in November, 1891. He became in 1849 head gardener of the celebrated "potager" at Versailles, and in 1874 director of the first horticultural college established in France at that place. He is remembered as a skilful gardener and an excellent administrator; indeed, the pupils who passed through his hands hold his memory in something like veneration.

The exhibition, which was favoured by fine weather, was a great success, and was crowded throughout the whole period, the visitors gazing with the greatest admiration at the fine specimens of Rhododendrons, Hydrangeas, Irises, Roses, and hardy plants

Stove plants were represented only by an exhibit from the Versailles Horticultural College and by the collection of M. Chantrier, of Mortefontaine, who showed his usual display of Brazilian Caladiums, including such fine varieties as Vice-Président Maigret and Alvaro de Carvalho.

Tuberous Begonias were shown by the usual firms, MM. Vallerand Frères, of Taverny, and M. Billard, of Vésinet. The exhibit by M.M. Vallerand included Streptocarpuses and some very fine Gloxinias.

Hydrangeas were the plants chiefly in evidence, the most noticeable examples being in the collection of M. Mouillière, of Vendôme, who had quite exceptional specimens, including Pasteur and Maréchal Foch in pink, and also in an absolutely intense shade of blue. M. H. Cayeux, director of the open spaces of the town of Le Hâvre, also showed very fine new varieties of Hydrangeas such as Le Cygne, pure white, and Matador, deep pink.

The Zonal Pelargoniums shown by M. Poirier, of Versailles, were disposed in masses according to colour, the effect being very rich. Carnations were few, being represented chiefly by a small collection from Croissy (MM. Idot et Durieux). It included some fine sorts, such as Alsace, with large pink flowers, and Mme. Paul Lécolier, salmon coloured. Another collection, sent by MM. Vacherot et Lecoufle, of Boissy St. Léger, included a number of good varieties; Alaska, creamy white; Camargo, pink; and Le Vésuve, red, being especially noteworthy.

The Orchids were assembled in a collective group shown by the principal French growers, both trade and private; some very fine specimens were included, among others Brasso-Cattleya Vilmoriniana, with large pink flowers tinted with yellow at the centre (M. Maron); Phalaenopsis Regnieri (M. Regnier) pink maculated; Laelio-Cattleya Mossiae Wageneri, pure white; and Masdevallia Harryana, red.

Several novelties were certificated, notably Laelio-Cattleya Ras Tafferi, carrying an enormous bloom with pink segments, and a violet purple labellum, shown by M. Perrin; this variety also won the special Julien Potin prize for the most beautiful Orchid in the exhibition. Other plants certificated were Cattleya Mme. Auguste Gauthier, a large pure white flower just tinged with yellow at the throat, also from M. Perrin; Odontioda nigrescens, with large reddish brown flowers, finely edged with white (M. Graire); and Brasso-Cattleya Leemann × C. Mossiae variabilis, with pale pink blooms of good size, yellowish in the centre (M. Bert).

The firm of Vilmorin-Andrieux, Paris, sent a large non-competitive exhibit of hardy plants grouped by colours in perfect taste; in the centre was a more or less formal arrangement with grass plots and white Carnations and Roses. As a background there was a large group of pink Eremurus Elwesii. The same firm also showed a very fine collection of Sweet Peas, comprising the best English and American varieties, and also flowers of the race known as "de Noel" ("Christmas") which is valuable for forcing and winter flowering.

The Férard firm (MM. Fortin et Laumonnier) had a large Alpine scene, furnished with hardy plants and rock plants; in the foreground masses of Primula obconica, Calceolarias, and Cannas made an effective display, the last including the fine French variety Oiseau de feu.

MM. Cayeux et Le Clerc made a comprehensive display, which included groups of Clarkia, Schizanthus, etc., and in the foreground, beds of Cineraria polyantha.

MM. Moser et fils, of Versailles, showed a small collection of aquatic plants, and M. Thiébaut, of Paris, a handsome group of Alpine and hardy plants.

Garden Irises were represented by two important exhibits; one, from MM. Cayeux et Le Clerc, containing the newest and best sorts, such as Imperator, Le Grand Ferré, Mme. Abel Chatenay, Mme. Blanche Pion, Fidelio, and Gloriae; the other comprising big sheaves of the large-flowered kinds from Verrières, such as Ambassadeur, Ballerine, Medrano, Magnifica, Châtelet, and Isoline.

Roses were very well shown, the exhibits being numerous and of good quality. From M. Defresne, of Vitry, there was an important group of standard, dwarf, and climbing varieties, including a pretty dwarf polyantha of a bright red colour, Verdun; Mme. Léon Pain, pale pink; Mme. Ed. Rostand, pink; Souv. de Georges Pernet, a fine pink shaded with yellow; Eugène Barbier, yellow; Mme. Edouard Herriot, etc. MM. Lévêque et fils, of Ivry, had an equally fine collection, including the pretty polyantha dwarfs Eblouissant (bright red), and Yvonne Barbier, white, as well as Etoile de feu, a pinkish-yellow Pernetiana; Jean Forestier, and George Beckwith.

MM. Nonin et fils sent from Châtillon sous Bagneux a good series of recent varieties, including Châtillon Rose, a pink polyantha with big clusters of blooms, Paul's Scarlet Climber, brilliant red; Elvira and Aramayo, reddish-orange; Golden Emblem, Los Angeles, Queen Alexandra, etc.

MM. Moser et fils, of Versailles, arranged a very beautiful exhibit, consisting of climbing Roses in festoons and garlands, besides a fine collection of varieties comprising some of the best novelties of MM. Barbier, of Orleans, such as La Champagne, pinkish-white; J. Tabart, flesh-coloured, shaded with yellow; Reims, pale yellow, deeper towards the centre, etc.

Rhododendrons and Azalea mollis were excellently shown, as usual, by the two firms of MM. Croux et fils, of Chatenay, and MM. Moser et fils, of Versailles. Fine specimens were noticed of Georges Berteaux, bright red; Annica Bricogne, mauve; Purity, white; Robert Croux, bright red; and Azaleas Fama, pale pink; Minerve, pinkish-yellow; and Gloria Mundi, brick red.

From M. Tuilleaux, at La Celle St. Cloud, came a fine exhibit of trees, and from M. Lécolier, of the same place, topiary specimens in Holly, Box, and Yew. M. Martin, of Louveciennes, sent a good collection of Japanese Maples, and M. Weiss, of St. Cloud, had a typical Japanese garden with a Buddha in carved wood, dwarf trees, and everything else complete, all in miniature.

Trained fruit trees in all styles were represented in a fine exhibit sent by M. Nomblot-Bruneau from Bourg-la-Reine, who had also a collection of fruit trees in pots laden with fruits fully ripe. M. Parent, of Rueil, had an appetising collection of hothouse fruits—Peaches, Plums, and Nectarines—and MM. Vilmorin-Andrieux exhibited, according to their usual custom, vegetables of all descriptions.

Horticultural sundries of all kinds were well represented, and comprised many systems of automatic spraying, an operation which is becoming more and more general.

A small room in which were shown paintings of flowers and gardens contained a number of good things, and there were also garden and park plans and designs, either completed or proposed, the work of the principal French landscape gardeners and their pupils.

The "Grand Prix d'Honneur" of the President of the Republic was awarded to M. Mouillière, of Vendôme, for his Hydrangeas. Certificates of Merit were awarded as follow:—

To MM. Cayeux et Le Clerc for new large-flowered Irises, Mme. Henri Cayeux, Le Vardar, Paul Huet, Ricardi blanc bleuté and Lent A. Williamson. To M. Henry Cayeux, of Le Hâvre, for Hydrangeas Sensation, Ginette and Idéal. To M. Louis Mouillière for Hydrangeas Mme. Philippe de Vilmorin and Mrs. H. J. Jones. To MM. Croux et fils, for new Rhododendrons Mme. André Punet, M. Marcel Ménard, Dr. Léon Aurousseau, Mme. Paul Courtin and M. Gustave Croux. To M. Chaubert, of Orleans, for Pelargonium grandiflorum Mirabolant, of a pretty bright pink colour. To MM. Fortin et Laumonnier, for Geum Lady Stratheden; to M. Chantrier, for Caladium Souv. de Charles Houlet, and for a specimen of a rare Palm from the Marquesas Islands, Pelagodoxa Henryana (Beccari), with flabelliform foliage, silvered white underneath, and very elegant (see *Revue Horticole* 1916-17, p. 302).

At the beginning of the Exhibition, the Annual Horticultural Congress of Paris met in one of the Society's rooms. The attendance was not very large; the following papers were read, and discussion afterwards took place:—Monographs on horticultural plants (1) the Araliaceae, by M. Guillaumin; (2) Musas, by M. Van. den Heede, and a memorandum by M. Bertin on the influence of scion on stock and vice versa. Two memoranda by M. Delplace and M. Vidault on the making of small, inexpensive gardens, and finally a lecture by M. Hitté on the advantages and disadvantages of various kinds of pulverisers. *A. M.*

ROYAL SCOTTISH ARBORICULTURAL (Aberdeen Branch).

One of the most interesting and enjoyable outings held in the annals of the branch was the verdict of the members when they returned from visiting the woods, policies and gardens at Dunecht House on the kind invitation of Viscountess Cowdray, the proprietrix. Headed by Sir John R. Gladstone, Bart., of Fasque, the company included many of the leading landowners, factors, foresters, nurserymen and gardeners within a wide radius of Aberdeen.

Mr. David Morris, factor, and his staff took the large company round, the first move being made to the wonderful and finely equipped estate workshop. As might be expected at the home of the head of the great firm of Pearson, the very latest mechanical contrivances were shown here. Mr. Henry G. Robb, head forester took the party round the spacious policies. The glorious weather prevailing showed the woods in all their umbrageous glory. Magnificent specimens of Firs, Beeches and Spruces, with a large variety of hardwoods, greatly interested the experts. The nurseries, with their excellent equipments and tastefully kept condition, were greatly admired. Lady Cowdray is carrying out a big planting programme just now. Over 100 acres have been planted this year, and it is intended to plant at the rate of fifty acres a year. Thus Lord and Lady Cowdray have fully realised the importance of afforestation to the estate and to the country. The mansion was next visited, and here the great taste of Lady Cowdray was finely displayed. The connoisseurs of the party revelled in all they saw at Dunecht.

Mr. William Smith, gardener, led the way round the gardens near the mansion house. These are some five acres in extent, with a large range of glass, and the products were declared by the experts to be amongst the finest this country can produce.

Thanks to the kindness of Lady Cowdray, luncheon and tea were served to the visitors during the proceedings. At the luncheon, Sir John R. Gladstone, president of the Branch, took the chair, and in very warm terms gave the toast of health and happiness to Lady Cowdray. Mr. C. S. France, the oldest member of the branch, was called upon to respond, and he asked the company to express their deep gratitude to Lady Cowdray for all she had done for them that day. This was heartily done. Mr. Morris, factor, on behalf of Lady Cowdray, returned thanks, and said he would convey to Lord and Lady Cowdray the evident pleasure and appreciation the members of the branch had shown for all they had seen at Dunecht that day.

ROYAL HORTICULTURAL.

TRIAL OF SPRAYING APPARATUS.

At a trial of spraying apparatus, held at Wisley on May 7, the following awards were made:—

Syringes. *Award of Merit.* — "Florist's Friend" Spraying Syringe, No. 2, sent by Messrs. W. T. French and Son, 22, St. Mary Street, Ladywood, Birmingham.

Commended.—"Florist's Favourite" Spraying" Syringe, No. 795c; Patent Spraying Syringe, 902b, both sent by Messrs. Martineau and Smith, 56, Holloway Head, Birmingham. "Florist's Friend" Spraying Syringe, No. 9, for use in a very small garden, sent by Messrs. W. T. French and Son.

Small Pneumatic Sprayers. *Awards of Merit.*—"Mysto" Pneumatic Hand Sprayer, No. 4, sent by Messrs. W. T. French and Son; "Queen" Pneumatic Hand Sprayer, sent by The Stonehouse Works Co., Spon Lane Mills, Houghton Street, West Bromwich.

Pneumatic Knapsacks. *Award of Merit.*— "Martsmith" Pneumatic Knapsack Sprayer, No. 42, sent by Messrs. Martineau and Smith.

Hand-worked Knapsacks. *Awards of Merit.* "Iron Arm" Knapsack Sprayer, No. 7, sent by Messrs. T. Milward and Son, Washford Mills, Redditch. Vermorel "Eclair" Special Brass Alloy Knapsack Sprayer, sent by Messrs. Cooper, Pegler and Co. 24, Christopher Street, Finsbury Square, E.C.

Bucket Sprayers. *Awards of Merit.* Vermorel Bucket Pump, Vermorel "Salva" Bucket Pump, both sent by Messrs. Cooper, Pegler and Co.

Commended. — "Mikado" Bucket Patent Spraying Machine, "Khedive" Bucket Pattern Spraying Machine, both sent by The Stonehouse Works Co.

Barrel and Tank Sprayers.—*Awards of Merit.*—Four Oak Battle Pattern Sprayer; sent by The Four Oak Spraying Machine Co., Sutton Coldfield, Birmingham. Vermorel "Presto" Single-wheeled Sprayer, sent by Messrs Cooper, Pegler and Co.

Highly Commended. — "Agriculturalist" Spraying Machine, sent by Messrs. W. T. French and Son.

Headland Pump Sprayers. *Award of Merit.*—"Craven Headland" Pump, sent by Messrs. Craven and Co., 48, Port Street, Evesham.

Highly Commended.—"Martsmith" Headland Portable Spraying Pump, sent by Messrs. Martineau and Smith.

Powder Knapsacks.—Highly Commended. —Vermorel "Torpille" No. 1. Knapsack Dry Sprayer, sent by Messrs. Cooper, Pegler and Co.

Powder Dusters. Highly Commended.— "New Tornado" Dry Sprayer. Commended. —"Baby Wonder" Dry Sprayer, both sent by Messrs. Craven and Co.

WAKEFIELD AND NORTH OF ENGLAND TULIP.

The eighty-eighth annual show of the Wakefield and North of England Tulip Society was recently held at the Brunswick Hotel, Wakefield. A large number of blooms in very fine condition were exhibited and competition in all classes was particularly keen.

The Silver Challenge Cup offered in the class for the best stand of nine Tulips, three Bizarres, three Bybloemen and three Roses, was won by Mr. C. W. Needham, Hale, Cheshire, who showed the varieties Cyrano (Feathered Bizarre), Attraction (Flamed Bizarre), Columbine (Feathered Bybloemen), George Edward (Rose Breeder) and Mrs. Collier (Rose Flamed), in very fine condition; Mr. S. F. Richmond, Ossett, was placed second with fine varieties of Masterpiece, Lord Denman and Bertha; the third prize was awarded to Mr. G. W Bentley, Castleton, Manchester, who had an excellent selection of representative varieties.

Mr. Needham was also successful in the class for six dissimilar Breeders and showed perfect flowers of Alfred Lloyd, Electra and Annie McGregor; Mr. G. W. Bentley, Castleton, Manchester, was second, and Mr. S. F. Richmond, Ossett, third. For a pair of flamed varieties, any class, Mr. C. W. Needham was again the first prize winner with the varieties Sir Joseph Paxton and George Hayward; Mr. C. J. Fox, Moseley, Birmingham, secured the second prize followed closely by Mr. F. S. Richmond. Mr. C. W. Needham again carried off chief honours in the class for a pair of feathered varieties, any class, with the varieties Attraction (Bizarre) and Bell Narine (Bybloemen).

Local Classes.

Competition in the local classes was very keen, and for a pair of six rectified varieties, dissimilar, Mr. Frank Fox, Normanton, was awarded chief honours with good flowers of Sir Joseph Paxton, Industry and Trip to Stockport; the second prize went to Mr. Robert Robinson, Horbury, and the third to Mr. S. F. Richmond. In a similar class for a pair of six Breeder varieties, dissimilar, Mr. I. Hewitt secured the first prize with the varieties William Lea and Lucy Luard in fine condition, and was followed closely by Mr. F. Fox and Mr. S. F. Richmond. For a pair of three Breeder varieties, dissimilar, Mr. R. Robinson was the first prize winner with perfect flowers of Goldfinder, Ida Sutton and Miss Burdett Coutts; Mr. F. Fox was placed second and Mr. E. H. Robinson, third. In the single bloom classes the principal prize winners were Mr. S. F. Richmond, who secured first prizes in the classes for Breeder Bizarres, Flamed Bybloemen and Feathered Roses; Mr. I. Hewitt, who was equally successful in the classes for Breeder Bybloemen and Breeder Roses; Mr. F. Fox secured the first prize in the class for Flamed Bizarres; Mr. E. H. Robinson took leading honours for Breeder Roses and Mr. H. Gill was first for Feathered Bizarres and for Feathered Bybloemen

The premier blooms in the open classes were shown by Mr. C. W. Needham with the varieties Cyrano, the best Breeder; George Edward, the best flamed, and Attraction, the best feathered. With regard to the premiers in the local classes, Mr. S. F. Richmond won the prize for the best breeder with the variety Gleam (Bizarre). A similar award for the best flamed variety was made to Mr. F. Fox with the variety Sir Joseph Paxton, and the best feathered variety was shown by Mr. E. H. Robinson with the variety Industry.

In the afternoon the presentation of the cup to Mr. Needham was made by Mr. G. W. Bentley, whose father, Mr. J. W. Bentley, J.P., recentley deceased, had for a long time taken a very keen interest in the welfare of the Society.

YORK FLORAL FÊTE.

June 18, 19, 20.

After holding a very long series of fine exhibitions in Bootham Park the managing body of the Grand Yorkshire Flower Show and Gala suddenly found themselves faced with the difficulty of finding a new site for their annual show. For some time it appeared as though the Gala would have to be suspended for at least a year, as a suitable and convenient place for the Show could not be found. Eventually the grounds surrounding the playing area of the football club were secured and arrangements made rapidly for the holding of a Show at Fulfordgate. This site is by no means so conveniently situated as Bootham Park, as it is about a quarter of an hour's tram ride from York Station, and for a considerable part of the way there is only a single tram line. As we had to leave early we had not a full opportunity of observing how great a crowd of people attended, but if the Gala authorities can attract the public to Fulfordgate in the same numbers as at Bootham Park, then success is assured, as there is more space at the former place. At Fulfordgate, the site is more open and airy, and the amusement section is kept quite away from the show tents.

It was unfortunate that the Gala authorities, owing to the peculiarities of the site, could not use the fine tenting they purchased from the International Exhibition of 1912, consequently they had to erect two huge tents of the ordinary type, which were not nearly so well ventilated as the better ridge and furrow arrangement, which had become so popular at Bootham Park, and is in use at the Chelsea Shows. But difficulties are made only to be overcome and as the Gala Committee has overcome many difficulties in the past and even survived disaster—as in the year when a hurricane levelled all the tents just before judging time and smashed up no end of exhibits—so we believe it will eventually make good again, and if not at Fulfordgate, at some other place. However, the Committee carried out its usual programme of kindliness to exhibitors and pressmen, entertained with its usual hospitality, and were rewarded with one of the finest exhibitions—in point of quality as well as extent—held in York during the past sixty-two years.

Congratulations are due to Mr. T. G. Hodgson, V.M.H., chairman; Mr. A. Anderson, secretary; Mr. E. Bushell, and the Committe, for capital arrangements. The President, J. J. Hunt, Esq., generously offered a special prize of £25, which was divided between Messrs. T. Rivers and Son and Mr. H. J. Jones; he also, we understand, gave £50 to the general funds to help to meet the additional expense to which the Committee has been put by reason of the change of venue. Nor can we omit reference to the doyen of the Gala, and one of its founders, Mr. Melrose, who was looking well and hearty, despite the fact that he will be ninety-six years old in August next.

Limits of space prevent us from describing the numerous trade exhibits, but we cannot refrain from congratulating Mr. H. J. Jones for his wonderful display of well-grown Hydrangeas in great variety—better arranged than at Chelsea; Mr. Robert Bolton, on his superb and extremely artistic exhibit of exquisite Sweet Peas; Messrs. Mansell and Hatcher, whose exhibit of Orchids received a full share of admiration; Messrs. T. Rivers and Sons, for a group of finely-fruited fruit trees in pots; Messrs. Sutton and Sons, for their display of fruit, flowers and vegetables; and Messrs. Broadhead for their rock and water garden exhibit.

Awards of Merit.

Awards of Merit were granted to the following plants and flowers:—

Sweet Pea The Beacon.—A light orange variety. Shown by Messrs. Ireland and Hitchcock.

Sweet Pea Moonbeam.—A pale blue and mauve variety. Shown by Messrs. Ireland and Hitchcock.

Dianthus Mascott.—The salmon-coloured hybrid between a border Carnation and Scarlet Beauty Sweet William. Shown by Messrs. Ireland and Hitchcock.

Sweet Pea Wembley.—A charming variety of soft helio shade. Shown by Messrs. Robert Bolton and Sons.

Sweet Pea, Mammoth.—A bright orange coloured variety of large size, many of the flowers carrying double standards. Shown by Messrs. Robert Bolton and Sons.

Sweet Pea Angele.—A fine new bicolor, with blue wings and dull rose standards. Shown by Messrs. Robert Bolton and Sons.

Campanula Ryburgh Bells.—This is a strong growing variety of the persicifolia type and produces tall branching spikes of large widely expanded bells of a pleasing shade of porcelain-blue. Shown by Messrs. G. Stark and Son, Great Ryburgh.

Groups.

Premier award in the chief group class, where a decorative display of flowering and foliage plants arranged on 300 square ft. was required, fell to Mr. W. A. Holmes, Chesterfield, who won the £20 prize with a pleasing design. His chief feature was an arch pleasingly clothed and festooned with Lantanas, Asparagus Sprengeri, Panicum variegatum, semperflorens varieties of Begonias, Linums, Codiaeums, Palms, and small red-leaved Japanese Maples. Immediately under the arch the ground was covered with moss and Tittonias, with a few fine Hydrangeas rising therefrom. Tall Cocos Palms accentuated the ends of the group, and around these were grouped Codiaeums, Humea elegans, rambler Roses, Dracaenas, Alocasias, Lilium Harrisii, Oncidium flexuosum, a few Laelio-Cattleyas, Clerodendron fallax, C. Thomsonianum and some capital Hydrangeas, Crassulas, Lantanas, the prettily berried Nertera depressa; Coleuses and small Ferns made a pleasing margin to the whole.

The second prize went to Mr. T. M. Petch, Bradford, who made good use of yellow Arums, Odontoglossums, and blue Hydrangeas in his exhibit.

In the smaller group class, where the space to be filled was 16 feet by 6 feet, Messrs. J. Cypher and Sons, Cheltenham, led with a bright and attractive display, in which artistic arrangement was a great feature. A very low arch was used as the centre piece, and a graceful Cibotium was the central plant, with Nandina domestica and Fuchsia triphylla hybrids and Kalanchoe carnea below it. Fine Kentias were used as flanking plants, and around and in front of these Messrs. Cypher very cunningly arranged Cattleyas, Laelio-Cattleyas, Odontoglossums, Haemanthus Katherinae, and Ixoras, with Aralias, Codiaeums, Nandina domestica, Ferns, and Selaginellas. Second prize was awarded to Mr. W. A Holmes, whose bold effort included good rambler Roses, bright broad-leaved Codiaeums, and excellent Lilium Harrisii. Mr. T. M. Petch secured the third prize.

In the amateurs' class for a collection of flowering and foliage plants effectively arranged on a space 12 feet by 6 feet, there was only one exhibitor, F. J. Hirst, Esq. (gr. Mr. E. Spinks), Beckwithshaw, Harrogate. This display, which consisted chiefly of Hydrangeas, Salvia splendens, Verbena Miss Willmott, Fuchsias, and Begonias, was awarded the first prize.

Orchids.

As the various competing exhibits of Orchids were arranged side by side along a whole length of central staging they made a fine show of richly-hued and choice flowers.

Messrs Jas. Cypher and Sons had the best table of Orchids, the space allowed being 12 feet by 5 feet. Cut blooms as well as plants were allowed and a good deal of licence was allowed in regard to arrangement. The exhibit arranged by the Cheltenham firm was a charming one, and small Bamboos and Ferns were used in association with Renanthera Imschootiana, Odontoglossums and Odontiodas, Thunias and Laelio-Cattleyas. J. McCartney, Esq., Hey House, Bolton (gr. Mr. C. F. Potts), won the second prize.

Messrs. J. Cypher and Sons led in the class for a dozen Orchids, distinct, their best plants being Thunia Megoriana, Dendrobium infundibulum and Laelio-Cattleya Canhamiana; second, Messrs. A. J. Keeling and Son; third, J. McCartney, Esq. The best half-dozen Orchids were pleasing examples of Miltonias, Cattleyas and Laelia Wiganiana shown by Messrs. J. Cypher and Sons, who were followed in order of mention by J. McCartney Esq. and Messrs. A. J. Keeling and Son. Mr. McCartney showed Odontoglossum Gladys in fine style. In similar order the same competitors won prizes in the class for three Orchids in bloom, the premier set consisting of Laelia Tyntesfieldiana, Miltonia vexillaria and Laelio-Cattleya Canhamiana. Mr. McCartney showed a good specimen of Laelio-Cattleya Isabel Sander. The best specimen Orchid was a fine plant of Odontoglossum Trentino magnificum, shown by Messrs. A. J. Keeling and Son; this had a spike of thirteen expanded flowers and two buds; second, Messrs. J. Cypher and Son.

In the amateurs' classes J. McCartney, Esq., held the field, winning first prizes for the best six Orchids, the best three Orchids and the best specimen Orchid; Brassia verrucosa, Dendrobium nobile album, Oncidium curtum and Odontioda Lumbeauiana were his best plants.

Roses and Carnations.

Mr. Elisha Hicks won the chief prize in the class for a decorative table of Roses and led with a brilliant exhibit in which, if inclined to be severely critical, we should state that the blooms in the central part of the group were rather too closely and formally displayed. The flowers were of splendid quality and the finest sheaves were those of Betty Uprichard, America, Mrs. Herbert Stevens, Golden Emblem, Golden Ophelia, and Hoosier Beauty. Mr. George Prince gained second prize and Mr. T. M. Petch, third.

The best collection of Roses arranged on a space 6 feet by 4 feet, was the one exhibited by Mr. Elisha J. Hicks, Twyford, whose beautiful group included fine stands of Hoosier Beauty, Rose Moyesii, Cupid, and Ophelia; Mr. George Prince, second.

In the open class for seventy-two Roses in not fewer than thirty-six varieties, Mr. Henry Drew obtained the first prize with a bright clean set of flowers, somewhat lacking in substance, however. Mr. Elisha J. Hicks led for three dozen blooms in not fewer than eighteen varieties, and among others showed the Queen Alexandra and Hoosier Beauty in fine form; second, Mr. George Prince; third, Mr. H. Drew. For forty-eight blooms Mr. Prince scored and was followed in order by Mr. Hicks and Mr. Drew. The best eighteen Roses were those shown by Mr. Elisha Hicks, whose blooms of Covent Garden and Mrs. H Winnett were very fine.

The only competitive exhibit of Carnations was a group of flowering plants set up by Messrs. G. T. Theakstone and Son, Hull Road, York; the plants were well flowered and the variety Madame de Brienen was particularly good.

Rock and Water Gardens.

Probably the darkness of the canvas overhead very greatly reduced the bright effect of the plants used, but be that as it may, we felt that the rock and water garden exhibits were not up to the standard of excellence and attractiveness usually reached at York. Moreover, there appeared to be some difference of opinion as to which class certain exhibits belonged and this difference had not been settled when we left the show ground, therefore our readers must please accept the records of this section, as the sale catalogues put it, "with all faults." So far as we could make out Mr. P. Gardner, Ilkley, was the only exhibitor in the large class for an "ornamental rockwork, decorated with hardy plants and flowers and other background." His arrangement was a pleasing one and contained some charming drifts of Saxifrages and Violas. In the water garden class Mr. Gardner was again the only exhibitor and his contribution had a brilliant background and flanking of Rhododendrons. Around the pool he grouped Primula japonica, P. pulverulenta and the yellow P. sikkimensis in very pleasing and satisfying fashion. We believe Mr. Gardner obtained a first prize in each class, and even though his displays suggested that he had had to hurry, he thoroughly deserved the awards he obtained.

In the rock garden class proper, Mr. F. W. Winn, Moorgate, York, secured the leading prize of £15 with a fine effort, into which a little mountain path was introduced. The rocks were pleasingly placed and of good type, and the furnishing with alpine Violas, Saxifrages in variety, dwarf Campanulas and dwarf shrubs was worthy of commendation; second Mr. R. P. Roger.

Hardy Flowers.

Hardy flowers provided a feast of colour in one of the big tents, where, indeed, they formed the principal feature.

The best of three collections each occupying a space of 350 sq. ft., was the one set up by Messrs. G. Gibson and Son, Leeming Bar. Splendid Poppies, a riot of colour, were associated with Lupins of exquisite shades, towering Verbascums, elegant Aquilegias, Pyrethrums and a central sheaf of Eremurus spikes. Second prize was won by Messrs, Harkness and Sons, Bedale, and third prize by Messrs. G. Longster and Sons, Malton, each of whom contributed a fine display.

In the class for a smaller effort, the space allowed being 18 feet by 7 feet, Messrs. Harkness and Sons were the winners of the chief award, and they were followed in order by Messrs. G. Gibson and Co., and Messrs. G. Longster and Sons. Messrs. Harkness and Sons appeared to be the only exhibitors of two dozen bunches of hardy flowers. In the amateurs' class, J. H. Jubb, Esq., Sykehouse, Snaith, won first prize for a dozen bunches of hardy flowers.

There was a rare fight between Messrs. Harkness and Sons and Messrs. Gibson and Co. for the premier award in the class for a group of Lupins; each showed finely and both exhibited fine strains of daintily coloured flowers; the awards were made in the order given. The same firms occupied similar positions in the class for a group of Poppies and the colour they provided was dazzling in the extreme.

Florists' Flowers.

Messrs. Ireland and Hitchcock, Marks Tey, were the only exhibitors in the class for a collection of Sweet Peas, arranged on a space of 100 sq. ft., and they deservedly gained the first prize with a delightful display in which large columns of Beacon, Mme. Sarah Grand, Moonbeam, Picture, and Lord Lascelles were raised well above the lovely vases of Mascotts White, Charming, Bunty, a lovely pale salmon seedling, Powerscourt, and Hawlmark Pink Improved; a fine effort.

Gloxinias were absent from the competitive classes and there was only one amateur group of Begonias. The latter was, however, a very interesting and representative one, as it contained a good variety of the popular florists' forms, as well as numerous hybrids and species, notably B. Pres. Carnot, B. semperflorens, B. fuchsioides, and B. Haageana. The exhibitor, A. Rowntree, Esq., Chalfonts, York (gardener, Mr. J. Armes), was deservedly awarded a first prize.

In the open class for a group of Begonias, Messrs. Blackmore and Langdon, Bath, were unopposed, and their magnificent group of superb varieties, grandly grown, would have been hard to beat. Baskets of the pendulous varieties Carminea, Lena, and Mrs. Bilkley, were suspended above the glorious blooms of varieties which have made Messrs. Blackmore and Langdon famous. Few exhibits in the York Show commanded so much admiration. The first prize was awarded, and an extra prize, if awarded, would have served merely to emphasize the super excellence of the display.

G. W. Miles, Esq., Dringhouses, York (gardener, Mr. R. Baram), was awarded first prize for a group of Calceolarias, and the awards for eight Calceolarias were made in favour of Major G. Palms, Lingcroft, York (gardener, Mr. W. Topham); W. N. Garbutt, Esq., Fulford Road, York (gardener, Mr. R. Keightley; and G. W. Miles, Esq.

Floral Decorations.

This section is invariably a good one at York. On this occasion Mr. Montague Stather, Cottingham, was very successful, coming first for a basket of flowers, with Carnations and Roses; first for a table decoration, with pink Sweet Peas and blue Thalictrum; first for a bride's bouquet, composed of white Cattleyas, white Odontoglossums and pale green Cypripediums; first for a bridesmaid's bouquet of Laelias and Cattleyas; and first for two hand bouquets of charming design.

Mr. F. H. Ward, York, led in the class for a bowl of cut flowers, showing red and pink Carnations; he also showed the best hand basket of cut flowers—pink Carnations. Mr. Ward won second place in several of the classes, and Messrs. Padgett and Watson were also prize-winners, obtaining the premier position for a pair of ball bouquets with brilliant arrangements of Odontoglossums, Odontiodas and Laelio-Cattleyas.

Awards to Trade Displays.

These were numerous, beautiful and interesting, and really formed the basis of the Show. In nearly every case these fine groups were staged along the sides of the tents leaving the central area for the competitive exhibits. It speaks well for the encouragement that the trade consistently receive at York that the traders exhibit on generous lines year after year, and thus in return support the Gala authorities enthusiastically.

Large Gold Medal.—To Messrs. Robert Bolton and Sons, for Sweet Peas; to Messrs. T. Rivers and Sons, for fruit trees in pots; to Mr. H. J. Jones, for Hydrangeas; to Messrs. Mansell and Hatcher, for Orchids; and to Messrs. Sutton and Sons, for flowers, fruits and vegetables.

Gold Medal.—To Messrs. Broadhead and Sons, for rock and water garden; to Messrs Kent and Brydon, for hardy plants; to The Backhouse Nurseries, York, for alpine garden; to Mr. C. Engelmann, for Carnations, and to Messrs. J. Peed and Son, for stove and greenhouse plants.

Small Gold Medal.—To Mr. W. Wells, Jun., for hardy flowers; to Messrs. S. Low and Co., for Carnations, etc.; and to Messrs. G. Bunyard and Co., for remarkably well kept Apples.

Large Silver Medal.—To Messrs. Toogood, for flowers and vegetables; to Mr. F. G. Wood, for hardy flowers; to Messrs. M. Prichard and Sons, for hardy flowers; to Mr. H. N. Ellison, for Ferns and Cacti; to Mr. James Douglas, for Carnations, and to Messrs. Dobbie and Co.

Silver Medal.—To Mr. G. Miller, for hardy flowers; to Messrs. Reamsbottom, for Anemones; to Messrs. Bakers, for hardy plants; to Messrs. Jarman and Co., for hardy flowers, etc.; to Messrs. W. H. Simpson, for hardy flowers, to Mr. R. V. Roger, for plants and flowers; to Messrs. Blackmore and Langdon, for Delphiniums; to Messrs. R. H. Bath, for hardy flowers, and to Mr. George Burch, for Roses.

Obituary.

Robert Page.—It is with deep regret we record the recent death of Mr. Robert Page of Hampton, who succumbed after a long illness. The late Mr. Page was well known as a market fruit grower and his death is a real loss to this generation. He was one of the many sons of the late Mr. M. H. Page.

James Sweet.—On June 7, at the mature age of eighty-five, Mr. James Sweet passed away at his residence at Whetstone, London, N. Since his early days he took a great interest in the growing of decorative plants for market and ultimately he founded the firm of Messrs. J. Sweet and Sons, Ltd. Ericas in particular were made a special line with this firm and the late Mr. Sweet was a recognised authority on the growing and treatment of these somewhat difficult plants.

ANSWERS TO CORRESPONDENTS.

Apple Blossom wilt: *C. B.* The trouble is caused by the fungous disease known as blossom wilt of Apples. It is due to a fungus closely allied to that which causes the familiar brown rot of fruit. Certain varieties are much more susceptible than others. It is advisable to cut off and burn affected parts, as the fungus often travels back into the wood, causing a kind of canker. Nothing else can be done to remedy the trouble.

Correction: The award made to the exhibit of Irises shown by Mr. Amos Perry at the R.H.S. meeting on the 11th inst. was a Silver-Gilt Banksian Medal and not a Bronze Medal as stated on p. 368.

Gardener's Expenses: *W. M.* As no agreement was made it will probably be impossible to enforce the payment of expenses, although it would have only been just and reasonable had your prospective employer paid your expenses after requesting you to come and see him.

Hardy Flowering Shrubs: *J. M.* The following hardy flowering shrubs would be suitable for your purpose: Hypericum Henryi, Berberis stenophylla, Rhododendron racemosum, Olearia Haastii, Veronica Traversii, Spiraea van Houttei, Diervilla Eva Rathke, D. Abel Carrière, Ribes aureum, Amelanchier oblongifolium, Genista hispanica, Cistus Loreti, Philadelphus microphyllus, and P. Lemoinei erectus. Grown under normal conditions some of these shrubs would eventually get too high, but they can be readily kept to the desired height by pruning.

Insect Attacking Rhododendrons: *C. L. D.* The Rhododendron leaves have been damaged by the Rhododendron bug (Stephanitis rhododendri). Spray the trees now and again in early July with a solution made by dissolving one teaspoonful of Campbell's Nico Soap in one gallon of water.

Ivy on House Wall: *D. P. B.* Provided Ivy is cut over annually and is not allowed to grow into the gutters on the house or become attached to the woodwork of the windows or porches, it does no harm to a house and tends to keep the wall dry rather than moist.

Muscat of Alexandria Grape: *Amateur.* The flowers of Muscat of Alexandria Grape may be pollinated with Alicante or any other free setting variety. The temperature of the house should be warm and the atmosphere rather dry, otherwise the berries will not set properly.

Names of Plants: *A. B., Herts.* Fuchsia procumbens. *F. A. U.* 1, Acer palmatum linearilobum; 2, probably A. monspessulanum, but the specimen was so small that it was impossible to determine it with certainty. *Yeaton.* 1, Limnanthes Douglasii; 2, Aspidium angulare; 3, Phragmites communis, variegated variety; 4 Glaucum luteum. *R. F. B.* 1, Cydonia japonica; 3, Helianthemum vulgare variety; 3 and 4, specimens too scrappy to identify; 5, Clematis montana.

Peach and Nectarine Trees: *J. A. H.* The disease affecting the Peaches and Nectarines is Exoascus deformans, the Peach leaf-curl fungus. All deformed foliage should be removed and burned. In February, just prior to the buds bursting, the trees should be sprayed with Burgundy mixture and the operation again performed about a fortnight later to ensure the trees being thoroughly covered. Burgundy mixture is prepared by dissolving 9¾ ozs. of powdered copper sulphate (98 per cent. purity) and 11 ozs. of powdered sodium carbonate in cold water in separate wooden vessels; the solutions are then mixed in a large wooden vessel and the volume made up to three gallons by the addition of water. The adhesive properties of the spray fluid is increased if ¾ pint of milk is added.

Silver Leaf on Plums: *E. A.* The specimens labelled Nos. 1 and 2 are badly affected with silver leaf: No. 3 specimen is slightly infested. Remove all diseased branches and dress the cut surfaces with Stockholm tar.

Tomato Black Rot: *Sea, Weaverham.* The Tomatos are affected by the fungus known as Black Rot. It is believed that the fungus, being a wound parasite, gains an entrance to the fruit through minute cracks or punctures in the skin. Extremes with respect to watering and the use of green manure, or anything that is likely to cause the fruits to crack, should be guarded against. All fruits showing any signs of the disease should be removed and burnt, and the plants sprayed occasionally with potassium sulphide, especially when they are setting their fruits. All the ventilators in the house should be opened on every favourable occasion; be careful to guard against too much moisture in the atmosphere.

Communications Received.—H. S. B.—W. W.—P. F. B.—K. & S.—G. M.—W. E. W.—J. W.—E. J. C.—L. E. X.—A. M.

THE
Gardeners' Chronicle

No. 1957—*SATURDAY, JUNE* 28, 1924.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62·1.

ACTUAL TEMPERATURE:— *Gardeners' Chronicle* Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 25, 10 a.m.: Bar. 30.4°: temp. 70°. Weather, Fine.

Trees and Shrubs at Westonbirt.

THE Conifers at Westonbirt deserve more than the brief description which they can receive here. Not a few of the finest specimens are about one hundred feet in height and some are yet taller. Impressive and beautifully grown as they all are, the most interesting group is perhaps that which stands in the garden near the house. It comprises the three Cedars, C. Libani, C. atlantica, and C. Deodara, all of considerable height, with the more erect growth of the Atlantic Cedar overtopping that of the Cedar of Lebanon, and near them, two specimens—the noblest we have ever seen—of Cupressus Lawsoniana stricta (erecta viridis), each about fifty-two feet high. Anyone who has seen this variety only in its small state can form no idea of the beauty with which age endows it. Certainly the C. erecta viridis at Westonbirt are as fine in their columnar erectness and deep greenness as any Libocedrus decurrens or Italian Cypress. The Atlantic Cedar was sown a year after its introduction—about 1844 — and since the stricta variety of Lawson's Cypress originated at Knaphill in 1855 these specimens cannot be more than three-quarters of a century old. Another group which remains in the memory consists of well-grown specimens of Cryptomeria elegans, forming a setting for Acer albo-limbatum, of rainbow tints, and A. japonicum laciniatum, which is one of the first of the Maples to develop autumnal, claret tints. As an individual specimen the tree of all the remarkable Conifers which most delights the eye is Patton's Hemlock, Tsuga Pattoniana, native of western North America. Its leaves have a slightly glaucous tint; its habit is pyramidal, with branches well separated and partly pendulous; strength and grace and elegance are all combined in it and the charm of its shape would need the resourceful pen of a Farrer to do it justice. Another beautiful tree deserving the discriminating praise which Prof. Sargent has bestowed upon it is Thuya orientalis with its orange male cones. The Hemlocks flourish here; there are noble specimens of the Western Hemlock, Tsuga albertiana, with branches sweeping the ground, and of the Canadian Hemlock, T. canadensis, with almost black foliage. The Douglas Fir, Pseudotsuga Douglasii, delights to find a home at Westonbirt and has grown magnificently in fifty years, as have also not a few species of Abies—A. nobilis, A. grandis, A. Veitchii, A. Nordmanniana, A. Lowiana, and A. cephalonica.

Discreet and stately the Coniferous contingent of the pageant at Westonbirt plays a great part—marshalling the lesser dicotylous plants in pleasing groups and, as it were, looking down benignly upon them and keeping them in their stations. Yet not all these others are dwarfed by the Conifers. Some of the newer dicotylous trees are already reaching up to the height of the Conifers. Betula Ermanii, to which Bean no doubt rightly ascribes a certain tenderness, bids fair to reach to the height—one hundred feet—to which it grows in its native places, Manchuria, Corea, and Japan. Already it is seventy feet high and its straight stem is covered with bark, like shot silk of pink and gold. Betula Lyalliana, another beautiful Birch, native of British Columbia, has also grown to a fine specimen. Most beautiful of all the Birches is the white-stemmed Himalayan B. utilis, which, though tender elsewhere, is thriving at Westonbirt. Indeed it is remarkable that so protracted a winter as the last should have done so little damage in the arboretum; except among a few Rhododendrons there is but little sign of its ill-effects. Of Poplars, the great-leaved Populus lasiocarpa flourishes and in view of its apparent ease of propagation deserves to be more generally grown than it is at present. This is true also of the Lime from central China, discovered by Prof. Henry in 1888, Tilia Olivieri, the leaves of which, dark green and smooth on the upper surface, are pure white on the under surface. A thriving young specimen of the Chinese Liriodendron is fulfilling the promise which it gave from the day of its introduction in 1901 and looks as though it would make a more elegant but less massive tree than its sister species, Liriodendron Tulipifera. Of "Southern Beeches," there are Nothofagus obliqua, the Roblē Beech, a timber tree which grows to one hundred feet in its native Chili, and another named N. procera. Of Magnolias the striking hybrid of M. conspicua parentage has the great merit of flowering a month later than the species; the Cucumber Tree, M. acuminata, is worth growing on account of its luxuriant habit and M. Delavayi has leaves of silvery undersurface. Of Pyruses not often seen, Westonbirt has fine specimens of the Chinese P. Folgneri, a most elegant tree, and P. Vilmorinii, also elegant, but more spreading and less tall than the former. As might be expected, the best of shrubby plants are to be found in the Arboretum; the new Viburnum fragrans of rosy foliage and flowering in March is one of Farrer's good plants. Others of the genus which grow well and add to the beauty of the Westonbirt Arboretum are V. Lentago with fragrant, creamy-white flowers produced in May and June; V. Veitchii, and the well-known and very beautiful V. tomentosum plicatum. Of all the Viburnums, a great specimen of V. rhytidophyllum was the most imposing. It is a species which some of the connoisseurs have condemned and we too have been apt to share the adverse opinion and to regard it as a coarse plant, but growing as it does at Westonbirt to a great height and standing out from a dark background, V. rhytidophyllum proves that it is worth its place in any woodland garden. That great garden genus Berberis is represented by many species—B. Thunbergii, seven to eight feet high; B. Gagnepainii, introduced by Wilson from China in 1904, and generally seen as a little plant, attains to nine feet; the deciduous but beautifully berried, B. brevipaniculata; B. dictyophylla, lax in habit, with glaucous young stems and leaves which take on a warm red tone in autumn before they fall; B. verruculosa, evergreen and black berried; the somewhat tender B. Fortunei, and the Westonbirt variety of B. stenophylla with B. Darwini-like, orange flowers. Among many other plants which deserve special note a few only can be mentioned.

The Rosaceous Stephanandra Tanakae from Japan has the merit of sounding the last colour note of the year, taking on its colour in the second week of November after the Maples have shed their leaves. A circular group of Cotoneaster Henryi, the members of which have lost their straggling habit and stand twelve to fourteen feet tall, has discovered at Westonbirt how to keep its berries from the birds and makes at all times a pleasing picture. Cornus controversa which grows to a tree and bears its leaves in tiers; Enkianthus campanulatus, the leaves of which make a symphony of red and yellow in the autumn; great masses of Henry's variety of Hypericum patulum; the July and August blossoming Eucryphia pinnatifolia, with dark green, shining, leaves and petals of purest white; the shrub which grows to a tree, Eugenia ulmoides, deserves mention—being the only rubber producing plant hardy in this country; Decaisnea Fargesii, curious for its blue, caterpillar-shaped fruits; Cornus Nuttallii, conspicuous by reason of its showy white bracts; Osmanthus Delavayi with fragrant, pure white flowers and egg-shaped, blue-black fruits, and last of all and most striking, tall specimens of Embothryium coccineum, the Fire Bush, with full flame-coloured flowers. The specimens had passed scatheless—or all but scatheless—through the winter in a well protected nook, and must be nearly thirty feet high and were certainly a mass of flowers. Of all the many Acers not mentioned and the many other trees and shrubs, it is not possible now to write; this brief account may, however, suffice to show a glimpse of the horticultural treasury at Westonbirt.

Horticultural Conference at the Midland Agricultural College.—A horticultural conference has been arranged to take place on Tuesday, July 8th, at the Midland Agricultural and Dairy College, Sutton Bonnington, Loughborough. The chair will be occupied by W. G. Lobjoit, Esq., O.B.E., J.P., Controller of Horticulture, and the programme of the morning session will include a discussion on "The Work at Rothamsted and its Bearings on Horticulture," opened by Mr. H. V. Garner, B.Sc. The items of the afternoon session will be devoted to papers on "Fruit Breeding," by Mr. G. T. Spinks, M.A., Botanist, Long Ashton Research Station; "Raspberry Culture," by Mr. W. H. Grubb, M.Sc., Pomologist, East Malling Research Station; and "Some Problems Affecting the Cultivation of Strawberries for Market," by Mr. W. H. Johns, N.D.H., Parks Superintendent, Bermondsey. Luncheon will be provided for a limited number (not exceeding 200), at a charge of 2s. each, and tea at 9d. each, an opportunity will be afforded during the luncheon hour and after tea to inspect the College buildings and gardens. The College is within ten minutes walk of Kegworth Station on the L.M. and S. Railway.

National Sweet Pea Society's Show and Trials.—The Secretary of the National Sweet Pea Society, Mr. A. C. Bartlett, 318, Kew Road, Kew, informs us that, although the latest date for entries is July 3 next, there are already indications of an exceptionally good show at the Royal Horticultural Hall on July 10 and 11, which will be opened by Queen Augusta Victoria of Portugal at 2.30 p.m. The members and their friends will dine together, under the President, Mr. J. W. Brunton, at the Connaught Rooms, Great Queen Street, Kingsway, at 7.30 p.m., on July 10; tickets 8/6 each. On the following morning there is to be an outing to view the Novelty Trials at Syon House Gardens, Brentford, and from thence to a luncheon at the Imperial Restaurant, Kew Green, at one o'clock. After lunch the members and their friends will visit the Royal Botanic Gardens, Kew, which just now are exceedingly beautiful and full of interest. Charabancs will start from the R.H.S. Hall for the outing at 10 a.m. Tickets for the drive and lunch are 6/6 each. In order that adequate arrangements may be made members are asked to notify the Secretary at an early date of their intentions concerning both the dinner and the outing.

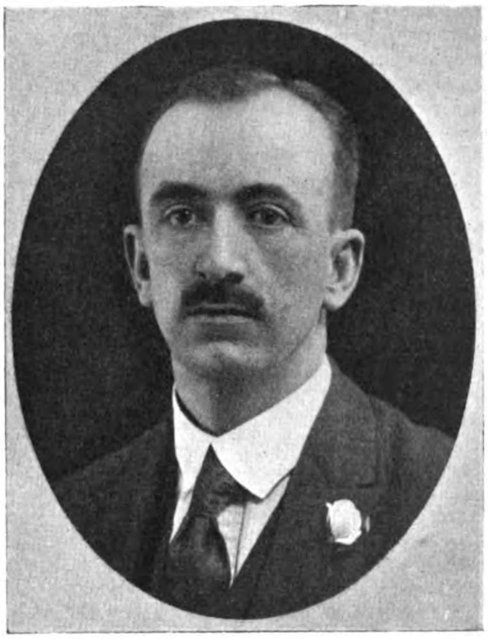
Iris Test Garden at New York.—We learn from the *Florists' Exchange* that Dr. Britton of the New York Botanical Gardens is undertaking the replanting of the Iris Garden at Bronx Park this summer. Close upon one thousand varieties have already been planted in the garden, and under the new scheme these are being arranged alphabetically so that each variety may be readily found. Large numbers of the older varieties are still needed for checking purposes and a list of those required may be obtained from the President of the American Iris Society, Mr. John C. Wister, Germantown, Pa., U.S.A. It is not known if all these old sorts are in cultivation in America and information is required so that such as are not now in existence may be deleted from the Iris Check List.

"Gardeners' Chronicle" Medal.—We are informed that the *Gardeners' Chronicle* Silver-Gilt Medal offered to the Committee of the Grand Yorkshire Flower Show and Gala was awarded to Messrs. T. Rivers and Son for their wonderful display of fruit trees in pots.

The Lateness of the Potato Crop.—The lateness of the Potato season is indicated by a comparison of the imports this year and last year. Imports registered during the week ended June 14 included 4,881 tons from France as compared with 13,978 in the corresponding week last year and 1,767 tons from the Channel Islands against 12,264, while the total imports amounted to 9,860 tons, as against 28,134.

Horticultural Research at Long Ashton.—The annual report of the Agricultural and Horticultural Research Station, Long Ashton, has recently been issued and contains a resume of the work carried out at this institute during 1923. The fruit plantations have been considerably extended, necessitating the erection of many new farm buildings, while a new orchard house for physiological experiments has also been built. From the report on the advisory work conducted by the Station it is gratifying to see that many growers take advantage of the assistance which is freely given, for no fewer than 658 enquiries were received and dealt with through the post during the year. The nature of these enquiries are sectionised under the subjects to which they belong. The remainder of the report deals with papers written by members of the staff, and include recent research in fruit culture, plant pathology, cider and perry, bi-chemistry of fruit, vegetable and fruit preservation, and Willow investigations.

Mr. S. W. Hale.—Previous to the war Mr. S. W. Hale followed commercial pursuits, for which he was fitted by a special commercial course of study after leaving school and also by passing the examination of the Chartered Institute of Secretaries. For five years he was in the Army, and for three-and-a-half years served on the western front, where he acted for two years as despatch rider, and for one-and-a-half years as an infantry officer in the Royal Sussex Regiment. He saw plenty of active service and went "over the top" on many occasions. After the war he joined the staff of the Chamber of Horticulture and for nearly three years was Assistant Secretary, becoming Secretary of the Chamber after the resignation of Major Matthews. Mr. Hale is doing excellent work in his present position, and has every confidence that there is a large and useful field of work before the Chamber of Horticulture.



MR. S. W. HALE.

Kelvin Hall Exhibition.—The flower show under the auspices of the Corporation of the City of Glasgow and the Glasgow and West of Scotland Horticultural Society, to be held on September 2 to 5, in the Kelvin Hall, Glasgow, will be opened by H.R.H. the Duchess of York. The sum of £1,500 is offered in prizes, in addition to cups, trophies and medals; the Glasgow Corporation Challenge Cup valued at £50 will again be offered for competion. The general manager of the show is Mr. C. P. Hainsworth, Kelvin Hall, Glasgow, from whom particulars of the exhibition and a plan of the building may be obtained.

Control of the Broad Bean Aphis.—Leaflet No. 37, published by the Ministry of Agriculture, dealing with the Bean aphis, appears at an appropriate time, for it not only deals with the life history of this troublesome pest, but also the best methods of control. Country folk at one time believed that infestations of the black aphis on Beans arose spontaneously, the weather generally being blamed, but now most persons are aware that Aphis rumicis passes its winter stage on other plants, such as Docks and the evergreen Euonymus. Eggs laid on the Euonymus hatch and give rise to female insects which are capable of reproducing pathogenetically, and the generations thus produced include winged forms which fly to the Bean. For methods of control the leaflet recommends a spray composed of nicotine (95%), ¾ oz.; soft soap, ½ lb. to 1 lb. (according to the hardness of the water) and ten gallons of water. It is recommended to make a concentrated solution by dissolving half-a-pound of soft soap in four pints of boiling water, allowing the solution to cool and then adding three-quarters of a fluid ounce of 98% nicotine. The mixture should be stirred very thoroughly and stored in a well-corked bottle. One fluid ounce of this concentrated mixture is sufficient for diluting with one pint of soft water. Another specific recommended is paraffin emulsion—two pints of paraffin, one pound of soft soap and ten gallons of water. The old method of pinching out the tops is a good one as the infestation commences at the apex of the plants and spreads downwards, and it is claimed that this also results in a better development of the Beans.

Imperial Fruit Show.—The schedule of the Imperial Fruit Soow, which will be held at Bingley Hall, Birmingham, from October 4 to November 1, is before us and includes competitions for commercial growers, and small growers, in Apple packing and window dressing for retail fruiterers. The guarantee fund has reached £4,917 2s. and only £83 is required to bring the total up to the £5,000 first aimed at. Large numbers of trophies are offered in the various sections, which includes the Kent and Southern Counties section, the Eastern and Northern section, the West and Midlands section, United Kingdom section, Overseas section and British Empire section. Most of the classes are for Apples, but there are also others for Grapes, Tomatos, Cucumbers, Pears, fresh Prunes and Citrus fruits. Several prizes are offered for trade exhibits. The entries close on September 27, but growers are asked to assist the organisers by sending their entries in as early as possible.

Appointments for the Ensuing Week.—Tuesday, July 1.—Royal Agricultural Society's Show (five days) at Leicester; Royal Tunbridge Wells Horticultural Society's Show (two days); Royal Caledonian Horticultural Society's meeting. Wednesday, July 2.—Croydon Horticultural Society's show.—Thursday, July 3.—Norfolk and Norwich Horticultural Society's show. Friday, July 4.—Streatham and District Rose and Sweet Pea Society's show. Saturday, July 5.—Windsor, Eton and District Rose Society's show; Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-Five Years Ago.—*Pinks.*—The propagation of these had better be proceeded with; commence with the scarce varieties, such as Criterion, XX., Jenny Lind (Road's), Laura, Harkforward, the Hon. Mrs. Herbert, Mr. Edwards, Norborough Buck, Morning Star, Bob Tickler, etc.; and by the time the general collection shall have been gone through the plants first operated upon will be producing a good second crop of grass, which in due time may be cut and again propagated; for, happy is he who finds himself in possession of a goodly stock of plants in his store or nursery beds from which to select at planting out time. In addition to the varieties mentioned above, the following have done duty well this season, viz., Blackheath Rival, Diana, Great Britain, Harriet, Lady Mildmay, Lord Valentia, Masterpiece, Melona, Prince Albert (Kirkland's) Pride, Queen of England, Rubens, Omega and Warden of Winchester. *Gard. Chron., June* 30, 1849.

NOTES FROM GLASNEVIN.

Two of the newer Rhododendrons which have flowered here lately seem worthy of note; firstly, Rhododendron dichroanthum because of its unique colour, and the fact that it has flowered here for the first time. True, only two trusses composed of three and six flowers respectively, developed, yet they gave some idea of what the plant will be like when it is older and larger. At present it is about two feet high and as much through, very compact in habit but may open out with age; the flowers are borne on stalks 1½ inch long, the corolla tubular-bell shaped, 1¾ inch long and 1½ wide, bright orange yellow when fully open. The largest leaves are 4½ inches long.

The second plant to which I refer is Rhododendron indicum var. macrostemon. This is literally covered with flowers so that scarcely a leaf can be seen: the whole plant is not more than a foot high and about as much through. The flowers, though small perhaps in comparison with those of other varieties of Rhododendron indicum are, nevertheless large for the plant, as they are an inch across; they are of a beautiful pink shade with a few darker spots above the stamens. It is a most useful variety for the rock garden.

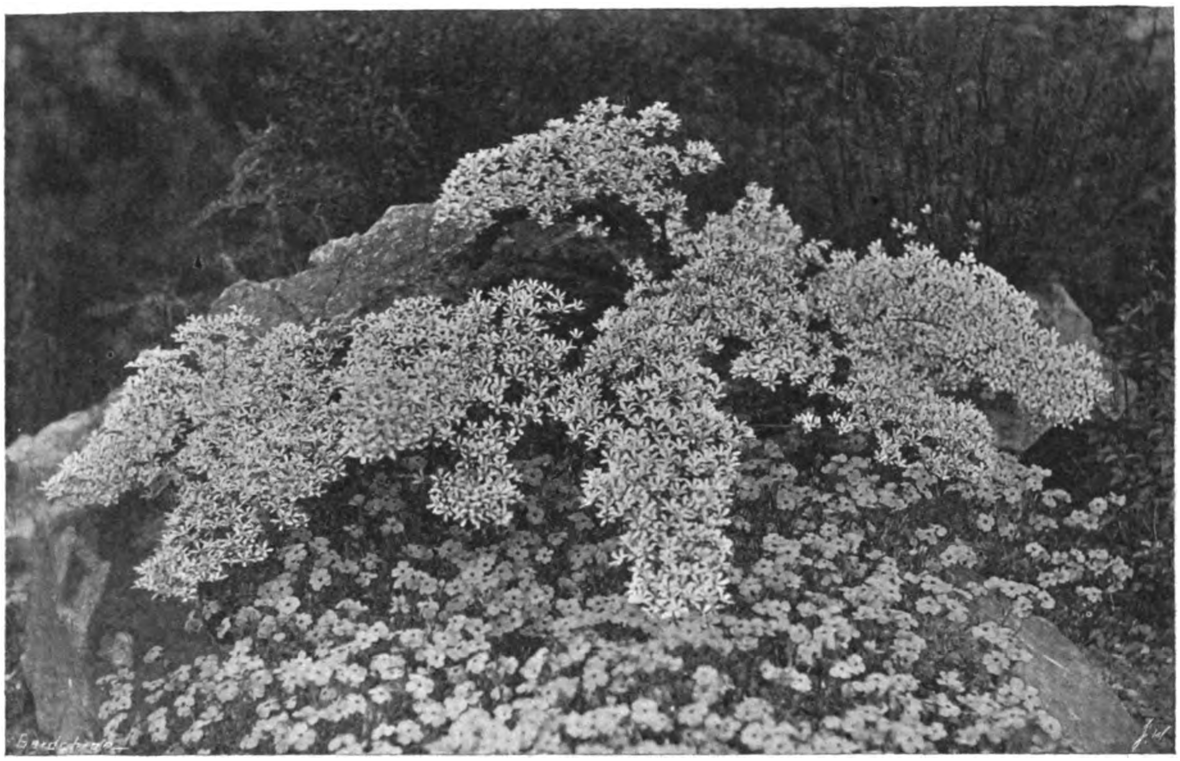


FIG. 168.—A SEEDLING FROM THE HYBRID SAXIFRAGA PARADOXA × S. LONGIFOLIA AT GLASNEVIN.

Syringa Wilsonii is, in my opinion, easily the best of the Chinese Lilacs. In common with the garden Lilacs it has flowered this year with remarkable freedom. The large trusses of soft pink flowers are delightfully fragrant, and as the plant is a very vigorous grower and easily propagated from cuttings, it ought to be grown wherever good flowering shrubs are appreciated.

Cytisus supranubius (see Fig. 163, p. 377) is uncommon but well worthy of inclusion in collections of choice shrubs. Although reputed to be tender I believe it could be grown in many districts planted in a sunny position in warm, well-drained soil. There was formerly in this garden a bush eight feet high and nearly as much through which only died through being blown over during a gale. At present several descendants of it planted against walls are flowering freely; one specimen was planted against a low wall but now overtops it by several feet and has been very beautiful for some weeks. The flowers are produced on shoots of the previous year; they are white, tinged with rose and sweetly scented. There are, doubtless, good grounds for retaining this plant in the genus Cytisus, although in habit it is much nearer to Spartium.

Magnolia Wilsonii is one of the best introductions of the last twenty years. The first plant to reach Glasnevin was planted against a north wall (where M. Delavayi has reached large dimensions) and for some years has flowered freely. Owing to the pendulous way in which the flowers are produced wall culture is not the best for it, nevertheless, the plant has flourished and many layers have been obtained. The flowers are delightfully fragrant; the pure white sepals and petals contrast well with the bright red stamens and carpels. Judging from plants here I should think shelter from cold winds, slight shade from hot sun in warm districts, and a porous, moist soil would meet the requirements of M. Wilsonii.

Schizandras are near relations of the Magnolias, and exploration in China has added several to those previously known. They are twining shrubs requiring supports of some sort and will probably prove suitable for pergolas and for training against tree trunks and walls. Three species are now flowering at Glasnevin on walls and are of considerable beauty and interest. Schizandra grandiflora has comparatively large white flowers, more or less suffused with pink. This species was previously known from the Himalayas. S. rubriflora is perhaps the most striking species, the flowers being of a rich, reddish brown and produced on slender pedicels from the leaf axils Some years ago I saw this species growing against a tree trunk at Mount Usher and was much impressed by its beauty. S. glaucescens, a third species now in flower, is rather similar in habit to the last named, but the flowers are orange coloured. All have smooth, fleshy leaves and twining stems.

Symphyostemon narcissoides (Fig. 169) is an interesting member of the Iris family and a native of South America. The flower stem reaches a height of a foot or thereabout. The flowers are produced from a double spathe at the apex of the scape, four or five together, each on a slender pedicel the flowers are tubular, with somewhat spreading lobes, dull white, emitting a heavy musky odour. Leaves linear, the lower part clasping the flower scape. It is an interesting and not unattractive plant which came originally to Glasnevin among a batch of unnamed bulbs presented by Mr. Jas. O'Brien, another in the same lot being Hippeastrum advenum.

Encrusted Saxifragas have flowered this season with remarkable freedom and among others a hybrid or, more accurately a seedling from a hybrid, has attracted considerable attention. Some years ago Mr. M. Hornibrook sent us a plant labelled Saxifraga paradoxa × Saxifraga longifolia. When it flowered it proved to be a fine plant and seeds were saved. As was to be expected, the seedlings varied enormously, some forming small rosettes and giving poor panicles of small flowers, others producing large rosettes of strap-shaped leaves rather like those of S. Hostii, and beautiful arching inflorescences. The photograph (Fig. 168) shows one of them; the flower stem, measuring over two feet in length, is furnished to within six or eight inches of the base with sprays of beautiful white flowers.

Primula chrysopa (Fig. 169) is one of the most satisfactory of the later introductions from China. Grown under conditions that suit P. japonica it flowers abundantly, sending up stout stems that bear umbels of pale lavendar flowers subtended by rather large bracts. Though perhaps not quite so good in colour as P. Wardii, it is a more vigorous plant and should be broken up and replanted annually; the addition of a little rotted manure in the soil is desirable.

Gypsophila fratensis seems little known although it is one of the most charming of June flowering alpines, forming mats of trailing, wiry shoots, clothed with linear, somewhat glaucous leaves. The cymes of pale pink flowers are produced in the greatest profusion. For trailing over rocks or covering a sunny slope it cannot be excelled. *J. W Besant.*

NOTES FROM WISLEY.

By the Riverside walk leading to the new Rose borders at Wisley many new Rose species are now in bloom. Their flowers are in many cases dissappointing and no better than those of our own wild species, but it must be admitted that the latter cannot boast of such astonishing fruits as, for example, those of Rosa pomifera. Of the more showy-flowered species Rosa altaica is very good, with creamy white flowers, and also the delicate-foliaged Rosa sericea, with white flowers and yellow stamens. A remarkable feature of the flowers of this Rose is the fact that in most cases they have only four petals.

In the wild garden there is a fine show of Primula japonica and P. pulverulenta among which the glossy-leaved and stout-stemmed Lilium giganteum is making prodigious growth. By the pools at the foot of the rock garden are blue stretches of Iris sibirica × orientalis, which harmonise well with the flowers of the neighbouring masses of Rhododendron ponticum, while around the wild garden ponds are innumerable Lupins.

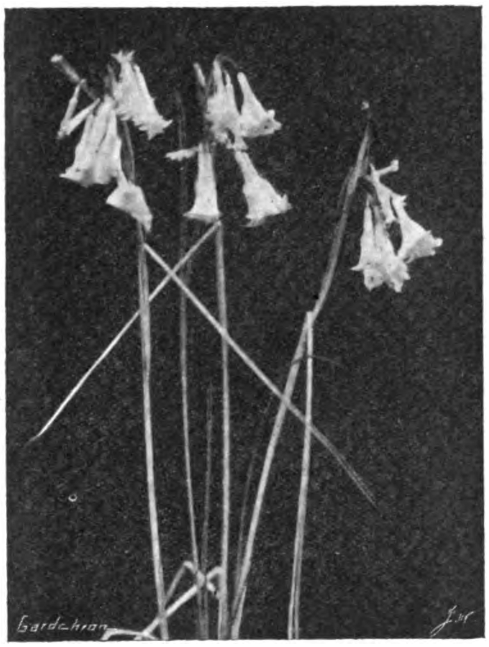


FIG. 169.—SYMPHYOSTEMON NARCISSOIDES.

(see p. 391).

In the rock garden the brilliant blue masses of Lithospermum prostratum and its variety Heavenly Blue have just passed their best, but other beautiful species of this genus are now coming into flower, such as L. intermedium and L. Froebelii, with tubular, hanging flowers, which are lilac in the bud. Another creeping shrub with brilliant blue flowers now in bloom is Veronica Guthriana; rich blue is also the dominant colour in the glorious flowers of Geranium grandiflorum.

In the moraine Geranium Farreri, which gained an Award of Merit at the recent Chelsea Show, is flowering. The pink flowers have red sepals and flower stalks and are noticeably larger in diameter than the leaves. Here also Dianthus alpinus is in flower, and the quaintly beautiful flower heads of the alpine Rampion, Phyteuma comosum are to be seen. Growing out of the rock face near the top pools is a bright patch of Heuchera sanguinea. This plant is usually grown in the herbaceous border, but in the moraine in company with Saxifraga Cotyledon norvegica it does not appear in the least out of place. *J. E. White.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart. Gatton Park, Reigate.

Platyclinis filiformis.—This pretty Orchid should be re-potted after it has passed out of flower, and so soon as new roots are seen to be pushing from the partly-developed growths. This plant is best grown in pans and suspended from the roof in a shady position in a house having an intermediate temperature. When the roots have grown freely in the new compost liberal supplies of water should be given them and the plants sprayed overhead on frequent occasions and also on the undersides of the leaves all through their growing period, as a means of warding off attacks of red spider. P. uncata and P. glumacea should be afforded similar treatment.

THE FLOWER GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Climbers.—The growth of climbing plants on walls and buildings proceeds rapidly and the pinching and tying of the shoots should not be neglected. The members of the genus Vitis particularly grow very quickly and are capable of covering large surfaces of walls or trellises in one season, but they need constant attention or the growths become interlaced and unmanageable. Newly-planted climbers will need occasional copious waterings, and established plants may be assisted by applications of liquid manure where this is practicable.

Hedges.—Growth is now active and evergreen hedges will need clipping. Hedges of large dimensions should be carefully trimmed with sharp shears to conserve perfect outlines. Recently-planted hedges should not be allowed to grow tall until the bases are well furnished.

Shrubs.—Deutzias, Philadelphus, Weigelas and other mid-season flowering shrubs should be pruned as they pass out of flower, by cutting back the branches which have borne the current season's flowers to the points of new growth. Where crowding is apparent the weaker growths should be removed entirely.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain Brocket Hall, Hertfordshire.

Strawberries for Forcing.—Preparations for the layering of young stock for next season's supply of forced fruit should receive attention so soon as runners are available. It is the practice in some gardens to layer the runners direct into their fruiting pots to save the labour of repotting them, but I fail to see any great advantage in this; plants in large pots require extra care in watering them, as there is a great danger of the soil becoming sour, especially if hot sunshine and drying winds prevail before the runners are well rooted. When large quantities have to be layered I much prefer to use 60-sized pots, which may be placed closely together in alternate rows and easily managed with regard to watering. In preparing the receptacles for the plants place some of the rough loam in the bottom in place of crocks; this will save time when repotting and the roots will be undisturbed. The potting compost should consist of good new loam mixed with manure from a spent Mushroom bed, after it has been rubbed through a fine sieve, and some ashes from the garden fire. Make the runners secure in the soil by the use of pegs; they will soon take root provided attention is given to watering them.

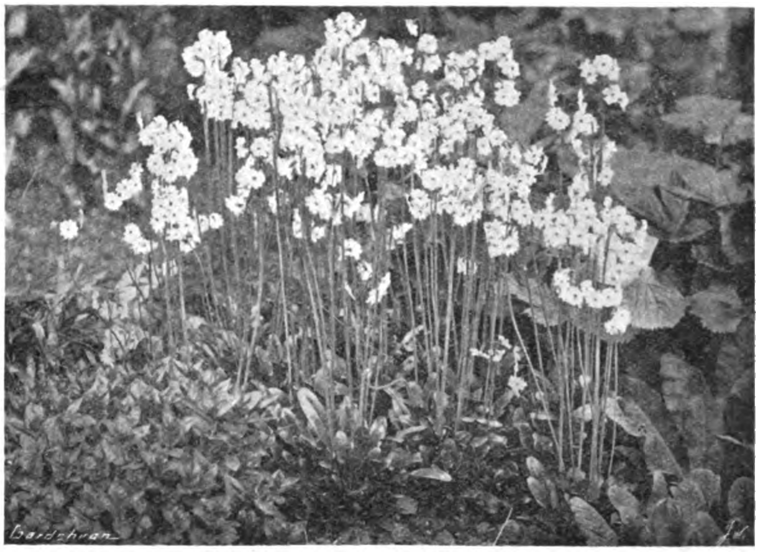


FIG. 170.—PRIMULA CHRYSOPA AT GLASNEVIN.

(see p. 391).

HARDY FRUIT GARDEN.

By R. W. Thatcher, Gardener to Mark Firth, Esq., Carlton Park, Market Harborough, Leicestershire.

Black Currants.—The bushes are looking more promising for a good crop than I have seen them for many seasons. The ground between them should be kept well hoed in dry weather. Any branches that are not fruiting may, if they are not required, be cut out to allow the young growth all the room possible. If the branches are cropping heavily and some of the fruits are close to the ground, spread a thin mulch of clean straw underneath the bushes to keep the berries clean. Net the bushes securely against birds. The nets should be stretched over stout wires fastened to strong posts about one foot higher than the bushes themselves. The fruits may then be gathered when they are ripe without necessitating the removal of the nets.

Standard Trees.—If standard trees are carrying heavy crops of fruit, and especially young trees, the stakes should be examined to see that they are firm in the ground. Without adequate support the trees will be swayed to and fro by rough winds, and much of the fruit shaken off. Standard trees of Plums, if well cropped, should have the branches supported in some way, as they are liable to snap off at the base when carrying a heavy crop of fruit.

Apples and Pears.—Both Apples and Pears promise well for large crops this season, and the fruits should be duly thinned. Pears will require thinning even more than Apples, as I have rarely seen so large a crop. The recent rains have benefited the trees very much. Keep a close watch for insects and take prompt measures for destroying them by the application of a suitable insecticide.

PLANTS UNDER GLASS.

By F. J. CLARK, Gardener to Lt.-Col. SIR GEORGE HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Cyclamen.—Young plants of Cyclamen which were raised from seeds sown last autumn should be ready for placing in their flowering pots. Six-inch pots may be required for the largest and strongest plants, but for the bulk of the plants those of five-inch diameter will be large enough. Good drainage should be provided. A soil consisting of two-thirds good fibrous loam, one-third good Oak-leaf-mould, with a free addition of old and crushed mortar rubble, sharp silver sand, and some finely ground oyster shell will suit them. Before potting, make sure that the plants are free from aphis and thrips; mild fumigation will clear them of the former, whilst if thrips have obtained a hold, the plants should be dipped in a safe and reliable insecticide. Guard against potting too deeply; one half of the corm should be above the surface of the soil when potted. Here, the plants are grown near to the roof glass in light, span-roofed houses, which are provided with sun-blinds. They may also be grown in cold frames from now until the autumn. When in active growth the plant will need copious supplies of water (soft or rain water should always be used), a free circulation of air, and shading from the sun.

ROSE TRIALS AT BAGATELLE.

THE Jury appointed to adjudicate upon the new Roses on trial at the Bagatelle Gardens, Paris, met at 9 a.m. on June 16. The members of the Jury included the leading French, American, Dutch, Luxemburg, and British growers, with M. Deville as President; Mr. Fred Howard, of Messrs. Howard and Smith, Los Angeles, California; and Mr. Ketten, of Luxemburg, as Vice-presidents.

The Roses inspected were those judged in June, 1923, as well as those seen for the first time, that is, those planted in the autumn of 1923 and in the earlier part of 1924. We are pleased to learn that the growth of the trees, especially those established for a year, was in much better condition than on any previous occasion. Many varieties were just at their best, a number were out of bloom or almost over, and a few varieties, especially those of the Wichuraiana and Rambler types were not in flower. On any definitely appointed day such conditions must inevitably occur.

The Gold Medal variety of French introduction was awarded to M. Pernet-Ducher for Angele Pernet, which gained nine points in 1923, and the same number now. This is a bedding Rose of promise possessing vigorous upright growth and clean glossy foliage. The blooms are carried on erect stems, they are not full, but of an attractive shade of colour which may be described as apricot with bronze shading in the half-opened flower, passing to pale yellow in the older bloom. The First Class Certificate for a French introduction was awarded to Odette Foussier from M. Chambard. This is a full flower of large size, resembling Madame Ravary in colour; it has a good constitution, upright growth and large foliage and should prove a good bedding Rose as well as a producer of exhibition blooms. This was a close second for the coveted Gold Medal, having been awarded eight points out of ten in 1923 and nine points in 1924.

As two other French productions were awarded eight points this year they were awarded Certificates. One of these, Margarita Riera, is from M. Pedro Dot and is a seedling from Madame Ravary × Madame Ed. Herriot. This is a Rose of attractive, deep salmon-pink colour with medium-sized foliage. Emile Charles, the other variety, is from M. Bernaix, and the colour is coppery-orange. The flowers are of medium size and the variety may be useful as a bedding Rose.

Although almost forty varieties of French origin were on trial few others merit notice, with the exception of Jeanne Cabanis (P. Guillot) which is of exhibition standard and is a good grower with handsome foliage.

The Roses from other than French growers in the 1923 and 1924 trials are comparatively few in number. The Gold Medal was awarded to John Russell (Messrs. Dobbie and Co.). This is a full flower of good size and dark crimson colour. The plant makes good growth and was awarded eight points in 1923 and again eight points in 1924. A First-class Certificate was awarded to America (Messrs. Hill and Co.), which gained seven points in 1923 and eight points in 1924. It is, however, only fair to state that on neither occasion was this variety seen at its best.

For the 1924 and 1925 trials fifty varieties were submitted for examination and these will be judged on June 25.

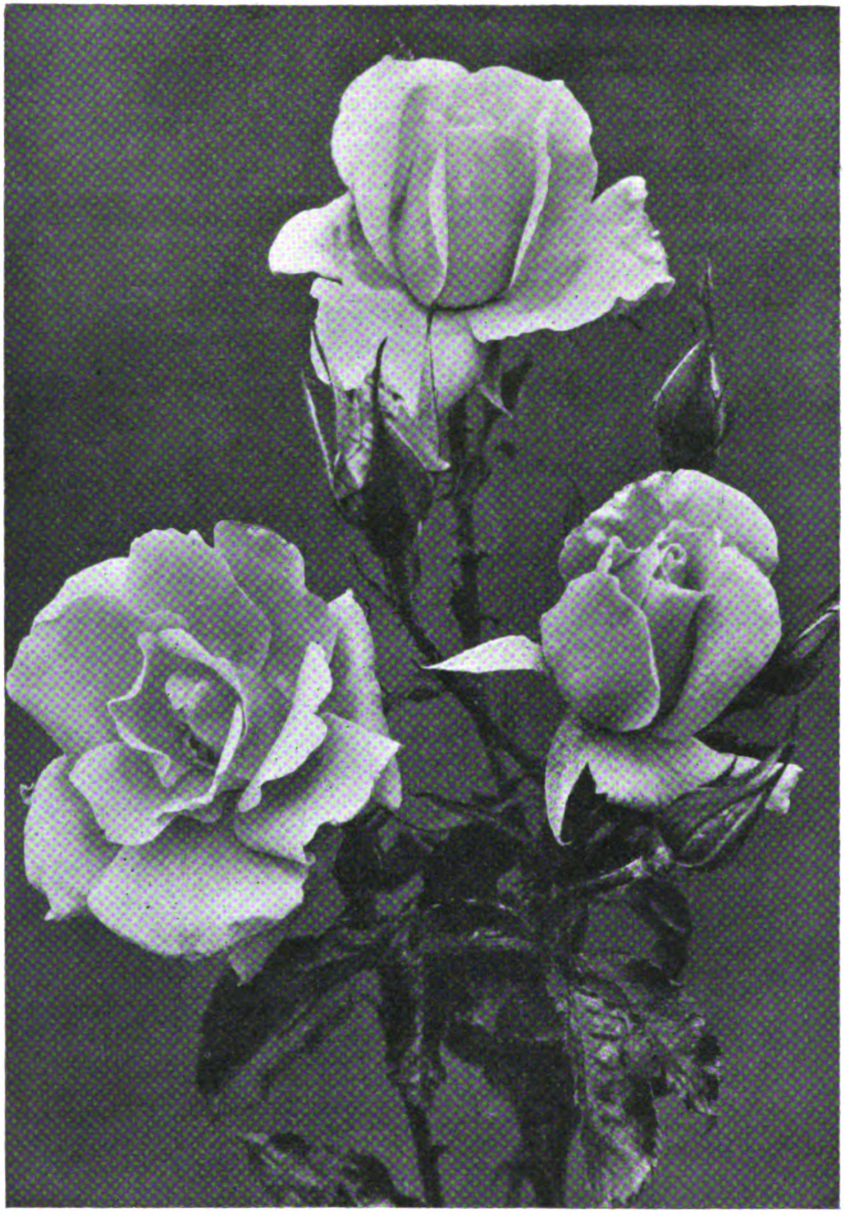


FIG. 171.—ROSE EMMA WRIGHT.

THE ROSE GARDEN.

ROSE EMMA WRIGHT.

FOR the introduction of this fine Rose (Fig. 171) we have to thank Messrs. S McGredy and Son who, in 1917, received a Certificate of Merit for it. Since that time it has withstood the test in many gardens and varieties of soils so that now it may be favourably recommended as one of the best bedding varieties.

In form the flower is semi-double, the fully developed blooms being a rich shade of golden apricot. The bud is neat and pointed, and, before expanding, is sulphur yellow.

The habit of growth and floriferousness commend it for bedding, and the foliage is clear, bright green, and mildew proof.

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TWO NEW BRITISH PLANTS.

IN might be thought that by this time the British flora had been so much studied that new species would not be found, but probably the last decade will bear comparison with any previous one of the last century.

CAREX MICROGLOCHIN.

The last discoveries are those of Carex microglochin, Wahl., which is such a well-defined species that even on a Benthamian standard it could not have been merged into anything else. This was discovered by Lady Davy and Miss Gertrude Bacon in July last on a mountain corrie of Glen Lyon, Perthshire, which forms part of the massif of the well-explored and rich Perthshire mountain of Ben Lawers. The specimen was sent to me for corroboration. It grew at 2,600 feet with other rare species of Carex and Juncus. As there was a little confusion as to its exact habitat the writer visited Glen Lyon in August last in company with Mr R. H. Corstorphine, Dr. and Mrs. Fleming, Mrs. Douie Urquhart, Mr. D. Haggart and other botanists, when we were able to trace it from 2,600 feet to nearly 3,000 feet altitude. It grows in wet micaceous, boggy spaces where the vegetation is sparse and small. The Carex is a small species three to five inches high and differs from the other British members of the genus in having a bristle at the anterior base which protrudes beyond the utricle. This mountain species is distributed in Greenland, Lapland, N. Sweden, Norway, Iceland, Savoy, Piedmont, Lombardy, Bavaria, S. Tyrol, Swabia, Lithuania, Altai, Caucasus, Himalaya, Thibet and now Scotland, and as a variety in the Rockies and the Andes. Its nearest ally is Carex pauciflora, for which it has been mistaken.

RUMEX ARIFOLIUS.

The second species is Rumex arifolius, All., a Sorrel-Dock allied to R. Acetosa, L., which I discovered some years ago on Loch na Gar, Aberdeenshire, at an elevation of about 2,900 feet, but I was a little doubtful about its identity as the fruit was not mature, so hesitated to record it. On seeing R. arifolius at Kongsvold in Norway, in 1922, I felt that this was the same as the Scottish plant. It was submitted to Prof. Danser of Amsterdam, a well-known authority on the Rumices, and he definitely identified it with R. arifolius. This species differs from R. Acetosa in its larger and often broader leaves of a softer and thinner texture, with more prominent veins and patent anticles, entire ochrea, somewhat smaller fruit-valves and dull yellowish-green nuts. In the common Sorrel the leaves are of a firmer texture, with obscure veins, long converging anticles and narrow sinus, laciniate ochrea, larger fruit-valves and blackish-brown shining nuts.

R. arifolius has a wide distribution and comprises several variants; it is known from Lapland, Sweden, Norway, Germany (Brocken), Thuringia, E. Bohemia, Alpes raro, Jura, Auvergne (Mt. Doré), Vosges, Sudelica, Austria, Hungary, Transylvania, Bosnia, Montenegro, Italy, Corsica, Sardinia, Greece, Siberia and Caucasus.

The discovery of these two Scandinavian species encourages one to hope that other elements of that northern flora may yet be found in Britain. It may be added that in the *Report* of the Botanical Society and Exchange Club of the British Isles, which will shortly be issued, there will be a full description of the above plants, and also that of three hitherto undescribed British species of Thymus from the pen of Herr Ronniger, of Vienna, a special student of the genus, besides two hybrids and some varieties. *G. Claridge Druce.*

A CURIOUS SEASON.

IT would be interesting to know whether the behaviour of plants during the present season in a garden under our close observation is characteristic of their general behaviour in the south of England. The outstanding features which have attracted our attention are first the evanescence of many flowers, and second, the disregard of the seasonable time table. Besides Tulips, which lasted only a few days, many other plants, in spite of the sunless weather and wet earth, although flowering profusely, have passed over much more quickly than is usual. Cytisus Dallimorei, the pink Broom, began to fade not many days after opening. The flowers of the Judas Tree remained but a short time; Anchusas, which bloomed precociously and freely, are now past their best; Cheiranthus mutabilis, which generally remains a mass of flower for a month or more, was this year very evanscent. And so it has been in this garden for many, though by no means all the plants. The explanation seems to be forthcoming from observation of two groups of the newer hybrid Trollius, one set in what was supposed to be a congenially moist place, and the other planted in drier ground. The former are long since past their flowering stage; the latter are still in bloom, therefore it would seem that the excessive rains by lowering the soil temperature and water-logging the ground have, as it were, water-logged the plants also. The tissues generally, including those of the flowers, were too watery to last, and hence, in despite of sunshine they withered as quickly as though they had been exposed in dry ground to to hot son.

Apple blossom showed the same fugitiveness and the after-effect is curious. The fruits here set well, but now the crop bids fair to be of the lightest. Plums, on the other hand, came earlier and at all events the early ones are bearing good crops—perhaps the burst of Easter sunshine just saved them! That burst of hot sun is perhaps also responsible for the early flowering of not a few plants which are blossoming alongside others which are belated; Spartium junceum is flowering with the Brooms and Irises; Polygonum baldschuanicum is beginning to blossom along with Rose Irish Elegance, and the Briars and even some of the autumn-flowering herbaceous plants are opening their flower buds, whilst the early Peas Harbinger and Little Marvel were far from being ready in time for Ascot, and though Rosemary blossomed early and remained in flower for a long time, Lavender—except a dwarf variety—is only just beginning to throw up its flower spikes. Plants generally, although they have withstood the adverse season remarkably well, seem to show in many diverse ways that they have had a rough time. Their gearing has been disturbed and only a spell of congenial weather will set them right again. Weeds alone have enjoyed the wet weather, and never in this garden have they rioted so luxuriantly—finding occasion to establish themselves in the inopportuneness of the season for the activity of their arch enemy the hoe. *N.*

HORTICULTURE AT THE BRITISH EMPIRE EXHIBITION.

PHYTOPATHOLOGY.

IN the Government Pavilion at Wembley some very interesting exhibits concerned with the health of plants are to be found in Gallery 11. These exhibits are arranged in large glass cases and although the exigencies of space have necessitated the over-crowding of material in many instances, the high standard of excellence in arrangement and preparation of specimens compels admiration and praise.

The Rothamsted Experimental Station contributes a very interesting exhibit which includes a diagram of the life cycle of the Bean aphis (Aphis rumicis). The left half of the diagram—from mid-October to mid-May—shows the period of the life cycle spent on the winter host (Euonymus), the fertilised female laying her eggs on this plant in the late autumn. The eggs hatch out in April and within from two to three weeks the young aphides become wingless, viviparous, mother-aphides, each one capable of producing about fifty young aphides daily. These in turn give birth to young, some of which are winged and fly to such plants as Beans and Poppies, reproduction going on all the summer. In the autumn some survivors then fly off to the winter host, where the fertilised female lays its eggs for next year's broods. The life history of the Gout Fly of Barley is also illustrated by some beautifully modelled specimens.

The "artificial" methods of controlling insect pests is well represented. These methods mainly consist of killing agents (insecticides) which are used as sprays, etc., and the exhibit illustrates the chemical constituents of Derris—the stems and roots of which possess valuable insecticidal properties—together with an apparatus for carrying out quantitative laboratory tests of insecticides under uniform conditions.

As opposed to the above methods is the "natural" one of keeping insects in check by means of other insects which live or prey upon them. In some countries the natural enemies of a pest may not exist. In New Zealand, for instance, the common earwig has become very prevalent, whereas in this country two species of Tachinid flies (Digonochaeta setipennis and Rhacodineura antiqua) "parasitise" the earwig. Consignments of the pupae of these parasites are being introduced into New Zealand, but great care has to be exercised in sending "clean" Tachinids, for they, unfortunately are in turn "parasitised" in England by a Chalcid fly which lays its eggs in the pupae.

The Experimental and Research Station, Cheshunt, has provided a highly creditable exhibit dealing with the control of diseases and pests affecting the Tomato and Cucumber. The diseases are represented by well prepared specimens of affected plants, in pickle, as well as pure cultures of the organism causing the disease. These include Phytophthora parasitica, commonly known as "Buckeye rot," which does serious damage to the Tomato fruits; Bacillus Lathyri, which causes "stripe"; Colletotrichum tabificum, a root-rot trouble; and C. oligochaetum, to which the anthracnose of the Cucumber is due. Of insect pests there are specimens and photographs of the Tomato Moth (Hadena oleracea), White Fly (Asterchiton vaporariorum), Red Spider (Tetranychus telarius), and the Cucumber-house Woodlouse (Armadillidium Speyeri). Measures of controlling these pests together with their life histories are prominently displayed.

The South-Eastern Agricultural College, Wye, Kent, is responsible for an exhibit in which is illustrated the life history of the fungus causing American Gooseberry mildew, with advice on the best m asures of control, viz., spraying with lime-sulphur and tipping. Three diseases of Red Clover are also exhibited; the Bunt or Stinking Smut disease of Wheat is also represented by specimens and photographs and its prevention by treatment of the seed grain by soaking in a solution of formalin is illustrated. From the Entomological Department of this institute there is an exhibit demonstrating, by means of photographs, alternative methods of controlling some pests other than by spraying fruit trees with poisons.

The life histories of the Onion fly, Carrot fly and Cabbage-root fly are shown by the Department of Agricultural Entomology, University of Manchester and in addition to the specimens there are enlarged photographs showing the early stages of the insects and illustrations of the method of fixing tarred discs around Cabbage plants to prevent the Cabbage-root fly from laying its eggs.

A highly educational exhibit on the subject of insect pest control is arranged by the Ministry of Agriculture. There are large models of the caterpillar (Hybernia defoliaria) and the plant-eating bug (Lygus pratensis), chosen as representing a leaf-eating pest on the one hand and a sucking insect on the other. The choice of sprays for these distinct types of pests is clearly set forth by means of photographs and diagrams. Another exhibit shows a minute Chalcid Wasp which has been imported from France. It feeds upon the internal organs of the Woolly Aphis, eventually kills it and changes into a pupa inside the dead body. The pupae finally becomes a Chalcid Wasp and emerges through a hole in the skin of the aphis. This "natural" method of controlling the Woolly Aphis is being attempted in this country this year and colonies of the Chalcids have been installed in the chief fruit-growing districts.

Fungous pests and virus diseases of plants are also dealt with in another part of the exhibit and the Silver-leaf disease of fruit trees is illustrated by several specimens staged by the Botany School, Cambridge University.

In the exhibit from the Agricultural and Horticultural Research Station of the University of Bristol are specimens of "big bud" and "reversion disease" of Black Currants and methods of recognising these troubles are shown. There were also exhibits dealing with the "Red Plant" disease of Strawberries caused by eelworm (Aphelenchus fragariae), as well as the canker of Apple trees caused by the fungus Nectria galligena.

The exhibit from the Institute of Agricultural Helminthology contains an interesting section dealing with diseases in various plants caused by eelworms. These are divided into two groups, viz.: (a) those attacking stem structures, including underground bulbs and tubers and (b) those attacking roots. Included in the first group were affected specimens of Clover, Onions, Wheat, Rice, Potatos, Chrysanthemums, Strawberries, Ferns and Narcissi. Field photographs showing the results of controlling the eelworm disease of the Narcissus by means of the hot water treatment were included in the exhibit.

This collection of exhibits is of outstanding interest and of immense educational value to gardeners, market growers and farmers.

TREES AND SHRUBS.

EMBOTHRIUM COCCINEUM.

IN his delightful book *Flowers: A Garden Notebook*, Sir Herbert Maxwell refers to Embothrium coccineum in a valuable chapter entitled "Some Failures." He writes: "Bitter in proportion to the magnificence of Embothrium coccineum has been the disappointment attending all our attempts to grow it here. Promising young plants have been put out in choice places on several occasions, and have refused to take on. It is admittedly an uncertain subject to establish; but it flourishes in three gardens within our neighbourhood, which renders our failure the more grievous to be borne."

I have seen at least two of the plants referred to by Sir Herbert Maxwell and can only sympathise with that true lover of flowers in his disappointment and trust that better fortune may attend his next effort. I am the more encouraged to be hopeful, as I have just seen a very fine plant in bloom in S.E. Kirkcudbrightshire, where it has been planted for at least ten years, and where it has now flowered for the first time. I had known of E. coccineum being attempted in one or two other gardens in the same county, but without success, and it was all the more agreeable to hear of its being in flower at Orchardton, Castle-Douglas, the charming home of Mrs. Robinson-Douglas. A few days after hearing of its being in flower I had an opportunity of seeing it for myself and of noting its position, etc. I found that it was planted on a wall almost due south, just at the angle formed by its junction with the west one Here E. coccineum had reached a height of about seven or eight feet and was in splendid health and bearing a good number of its brilliant scarlet flowers.

As I have already indicated, this plant has been here for quite ten years and has not flowered until this season—a circumstance which holds out hope for those who can keep it alive but have not yet succeeded in flowering it. One fact which strikes me as rather peculiar is that the past summer and autumn did not appear to be particularly favourable to tender shrubs either in hardening them off or to cause them to ripen their growths. As is well known, the summer of 1923 was dull and sunless, while autumn and winter rainfalls were heavy and continuous and followed by some sharp frosts. Yet the Orchardton plant of E. coccineum seemed in superb health, although Mr. Wilson, Mrs. Robinson-Douglas's gardener, assured me that it had no protection save that provided by the walls of the garden and the proximity of the fruit trees which occupy the adjacent parts. *S. Arnott.*

SALIX DAPHNOIDES.

BECAUSE of the conspicuous purple or violet-coloured waxy bloom on the vigorous young shoots Salix daphnoides is frequently referred to as the Violet Willow (Fig. 172). The typical species is a tree of erect, vigorous habit, thirty-five to forty feet, or more in height. In March or early April the male trees are often very attractive when laden with showy catkins up to two inches long, rivalling in beauty those of the Palm or Goat Willow, S. Caprea. S. daphnoides is a native of Europe, extending through Siberia to the Himalayas.

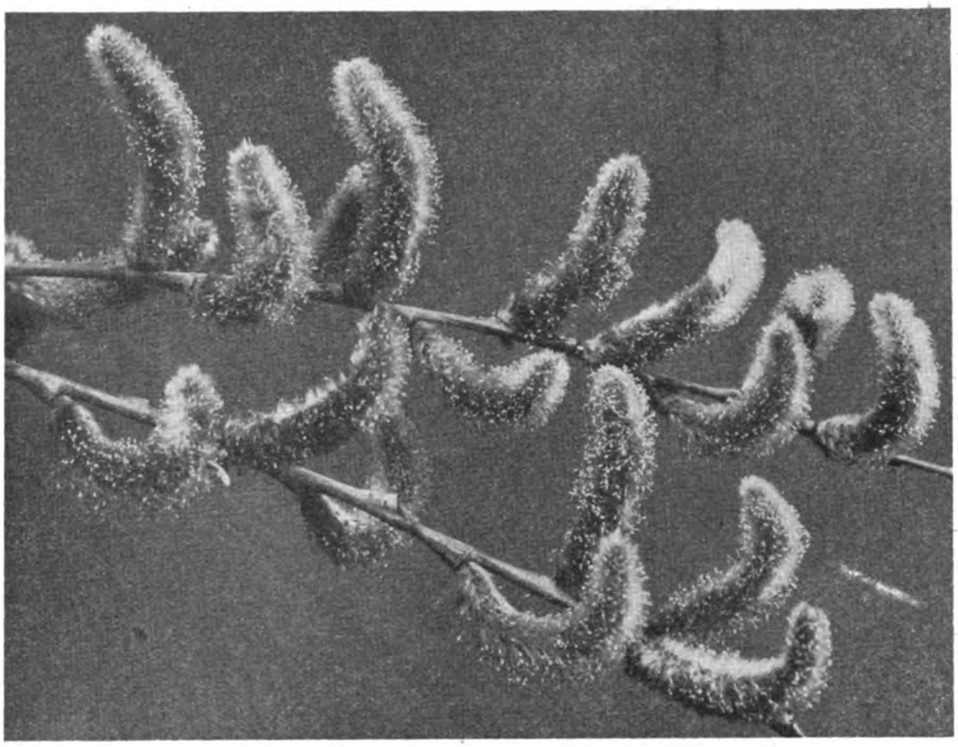

FIG. 172.—SALIX DAPHNOIDES.

A tree of smaller stature, often a large bush, native of Russia and Turkestan, is cultivated under several names, viz., S. pruinosa, S. violacea and S. daphnoides acutifolia. This is probably a varietal form and its distinguishing features are a more twiggy growth and narrower leaves.

S. daphnoides and its forms provide very useful companions to S. vitellina and the variety britzensis to cut back annually in late spring. This results in a free growth of vigorous young wood with Plum, golden-yellow and red-coloured bark respectively in winter. For planting in wet ground, for which the choice of shrubs is limited, these Willows with coloured barks are worthy of attention. *A. O.*

NOTICES OF BOOKS.

Fruit Culture.*

The author of this book, who is well known as gardening contributor to *The Daily Telegraph*, intends it to be "a comprehensive and instructive companion for amateurs and young professionals." We fear. however, that such readers will be considerably mystified by its pages. Probably the author knows how to grow fruit, but he unfortunately does not possess the gift of imparting his knowledge in words that can be easily understood by the inexperienced. The opening chapter on "The Fruit Garden" is poor, with its frequent repetitions and apparent contradictions. After reading it through twice we fail to gain a clear idea of the author's methods of culture. The planting instructions are sound enough, except that the advice to plant pyramid Apples and Pears six feet apart each way is likely to be regretted if followed. The usual cutting back after planting is not favoured, though its omission probably ruins more trees than any other form of neglect, and is the beginners most common mistake.

The system of pruning recommended by the author is apparently the old-fashioned restricted system in its extreme. From disbudding in spring till "the final shaping up in winter" the trees are hardly left alone, but are subjected to almost continual pinching of shoots, the result of which has to be counteracted by frequent resort to root-pruning or transplanting. We are told that "it is incumbent upon every cultivator to wage relentless war against the diseases and insect pests which appear everywhere when least expected," and yet amateurs are recommended to spray only when the trees are leafless, "otherwise they may do more damage than good."

The chapters devoted to the different classes of fruit are more useful and straightforward, but as they cover practically every fruit crop grown in the open and under glass, the space devoted to each is necessarily limited.

The inclusion of the word "utility" in the title seems hardly to be justified by three-and-a-half pages only on preserving fruit, and one page on the cooking qualities of certain varieties of Apples.

The work is freely illustrated and has, as a frontispiece, a picture in colours of Apple Cox's Orange Pippin. *M. G.*

Sanders' List of Orchid Hybrids.

No greater boon could be conferred upon Orchid hybridists and cultivators interested in Orchids generally and their wonderful development in gardens during the last twenty years or so than the publication by Messrs. Sanders, St. Albans, of the new *Addenda** to their *List of Orchid Hybrids*. The new issue enumerates all the hybrids of 1921-1922, and 1923, thus bringing their great work up-to-date.

The last edition of *Sander's List of Orchid Hybrids* included all known Orchid hybrids to January, 1921, the present issue commencing with p. 226, in continuation of the main work, which may be said to have prevented chaos in hybrid Orchid naming.

The work has been a labour of love to the Sander family and Mr. F. K. Sander in recent times has carried out most assiduously the work commenced by his father and which has resulted in a perfect record without which no new hybrid Orchid can be accurately tested. The plan of the new *Addenda* conforms with the main issue, of which it is a continuation. A glance at the new additions to all the principal genera during the last three years shows the absolute necessity of bringing the records up to date in the manner here adopted and those who have been attempting to keep some sort of record by entering up those which come under their observation will be greatly relieved to have this authoritative work to check their own records and to complete their own lists.

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* *Fruit Culture and Utility, by Donald McDonald, F.L.S.* London: Robert Hayes Ltd. 276 pp. Illustrated. Price 6s. net.

* *Addenda to Sander's List of Orchid Hybrids*, 1921-1922-1923. Messrs. Sanders, St. Albans, England, and Bruges, Belgium. Price 7s. 6d., post free.

NEW HYBRID ORCHIDS.

(*Continued from May 24, p.* 302.)

Name.	Parentage.	Exhibitor
Cattleya White Queen II.	Trianae × Irene	Armstrong & Brown.
Cymbidium Victrix	Venus × Alexanderi	Sanders.
Laelio-Cattleya Clarion	C. Mossiae × L.-C. eximia	Sir Geo. Holford.
Laelio-Cattleya eximoglossa	eximia × callistoglossa	C. J. Lucas, Esq.
Laelio-Cattleya Freda	C. Mossiae Wageneri × L.-C. Germania	Sir Geo. Holford.
Laelio-Cattleya Lute	L.-C. Lucia × C. Mossiae Reineckiana	Sanders.
Laelio-Cattleya Val de l'Eau	C. Schroderae × L.-C. Cora plumosa	Sanders.
Odontioda Alethea	Oda. Diana × Odm. Broteham	Charlesworth.
Odontioda Barbara	Odm. Aireworth × Oda. Meteor	Charlesworth.
Odontioda Crescia	Odm. Dora × Oda. Meteor	Charlesworth.
Odontioda Dolosa	Oda. Brewii × Odm. Harryanum	Charlesworth.
Odontioda Elina	Oda. Elsie × Odm. Pharos	Charlesworth.
Odontioda Flanders	Oda. Red Cross × Odm. Dusky Monarch	R. Gerrish, Esq.
Odontioda Freda	Oda. Bradshawiae × Odm. Pharos	Charlesworth.
Odontioda Grace	Oda. Wilsonii × Odm. amabile	Charlesworth.
Odontioda Olive	Oda. Chanticleer × Odm. Aquitania	Charlesworth.
Odontioda Pamela	Odm. Harryanum × Oda. Madeline	Charlesworth.
Odontioda Pekoe	Oda. Coronation × Odm. splendidum	J. J. Joicey, Esq.
Odontioda Radiance	Oda. Chanticleer × Odm. percultum	Sir G. Holford.
Odontioda Ursula	Oda. Hermione × Odm. Felicity	Charlesworth.
Odontioda Zena	Oda. Devossiana × Odm. Pescatorei	Cowan.
Odontoglossum Alvara	Ithone × Clovis	Charlesworth.
Odontoglossum Asmode	Queen Mary × eximium	Charlesworth.
Odontoglossum Avoca	eximium × King Manuel	Charlesworth.
Odontoglossum Clydonia	Fabia × St. James	Charlesworth.
Odontoglossum Dalmatic	Aireworth × St. James	Charlesworth.
Odontoglossum Enid	majesticum × percultum	Sanders.
Odontoglossum Gatton Gem	crispum × V.C.	Sir J. Colman.
Odontoglossnm Harmony	Dora × Mars	Armstrong & Brown.
Odontoglossum Isolene	Georgius Rex × Tityus	Charlesworth.
Odontoglossnm Lucretia	amabile × St. James	Charlesworth.
Odontoglossum Marcella	ardentissimum × The Czar	Charlesworth.
Odontoglossum Monarch	Aglaon × majesticum	Cowan.
Odontoglossum Muralis	Penelope × Clovis	Charlesworth.
Odontoglossum Norvic	Clovis × Aquitania	Charlesworth.
Odontoglossum Omega	Aglaon × St. James	Charlesworth.
Odontoglossum Orobus	Georgius Rex × Czar	Charlesworth.
Odontoglossum Ovidius	Felicity × St. James	Charlesworth.
Odontoglossum Selma	Jasper × percultum	Charlesworth.
Odontoglossum Thecla	Aglaon × Penelope	Charlesworth.
Odontoglossum Torenia	Lambeauianum × Aquitania	Charlesworth.
Sophro-Laelio-Cattleya Magnet	S.-L.-C. Virginia × C. Hardyana	Sir Geo. Holford.

WALHAMPTON, HAMPSHIRE.

(*Concluded from p.* 380).

Of the many fine features which Lord St. Cyres' interesting gardens include none is more beautiful than the water scenery, and each of the three large lakes has a glorious setting of beautiful trees, including many magnificent specimens of Scotch Pine, some of which are seen in the illustration reproduced in Fig. 173. Two of the lakes, known as the Portmore Pond and the Lily Lake respectively, are some distance to the west of the residence and approached through beautiful glades that lead past a sunk garden known as The Rotunda.

The Rotunda garden is, in itself, very interesting and at the time of my visit patches of Primula pulverulenta Mrs. Berkeley were contributing pretty masses of colour. It is planted with such subjects as Rhododendrons of the Falconeri type, Hydrangeas, Ceanothus Veitchianus, Olearia insignis, and, growing on pillars, Lapageria rosea; it also includes a rockery containing many beautiful alpines.

The arboreal vegetation in the neighbourhood of the lakes is not all of the forest type shown in Fig. 173. Along one side of the Lily Lake is a wide shrubbery containing some of the choicest specimens of Acer palmatum in the country and many healthy Camellias. In the background of the shrubbery are three large specimens of Eucalyptus Globulus and one of E. cordata. Bamboos are perfectly at home in this favoured border, and there are splendid examples of Arundinaria anceps, Bambusa nigra and others. The tender Crinodendron Hookeri has grown into big bushes which flower profusely each season, and here also grow to perfection the free-flowering New Zealand Leptospermums.

The planting around the banks of the lakes is most skilfully and pleasingly carried out. The Lily Pond is edged with Primula pulverulenta, P. japonica, named varieties of Astilbes (Spiraeas), moisture-loving Ferns, principally Lomaria procera, and beds of Ericas, masses of E. australis being carpeted with E. carnea.

On the north side, where the bank rises, great patches of Azalea Van Thol, Rosemary and Cytisus praecox, all in full flower at the time of my visit, made a most glorious picture, and associated with them were such attractive shrubs as Elaeagnus pungens aurea, and a beautiful specimen of Senecio Grayi, whilst on the opposite or east side there were other big patches of colour made by Azalea Hinodogeri, Acer palmatum, the grey Cineraria maritima, and Cytisus praecox, all of which showed to advantage against the background of beautiful trees.

To the east of the lake lies the tropical garden, a semi-woodland spot in which tender shrubs, trees and plants find a congenial home. Such tender subjects as Musa japonica, Corypha australis and Acacia dealbata survive the winters in this partial clearing of a wood with only the protection of the native trees. The visitor might well imagine himself or herself in a Riviera garden instead of in an English one, amongst healthy specimens of Eucalyptus cordata, E. Stuartiana, E. MacArthuri, and E. coccifera; Crinodendron Hookeri, Chamaerops excelsa, Corypha australis, two Palms, the latter of which is rarely seen in the open in this country; Illicium religiosum, Lapageria rosea, Beschorneria yuccoides, magnificent specimens of Cordyline (Dracaena) Parryi; Stransvaesia undulata, Metrosideros lucida, a rare species; Piptanthus nepalensis; Camellia reticulata; Mitraria coccinea trained over a stone pedestal; a huge clump of Phormium tenax variegata; Crinums in great variety; Leptospermums of sorts; Dendromecon rigidum; Lomatia ferruginea, Pomegranates, Grevillea sulphurea and Acacia dealbata. The last has made a tree some thirty feet or more tall and has flowered profusely for many seasons. Unfortunately the severe winter and spring of 1923-1924 has injured this magnificent specimen badly, but the tree is breaking into fresh growth and Mr. Honess, the gardener, informed me that he has every hope it will make a steady recovery and be as beautiful again and flower as freely as in the past.

The sub-tropical plants are mostly grown in especially prepared beds containing a liberal amount of leaf-mould, of which unlimited quantities exist in the woods. The prepared beds are carpeted with interesting flowering plants, such as Sparaxis, Watsonia Meriana, Tritonia crocata, Schizostylis coccinea, Richardia Mrs. Roosevelt, and R. Elliotiana, Crinums in variety, Anthemis Cupaniana, Ericas and many more.

Near the water's edge, in a bog quite close to the tropical garden, Mr Honess placed, some four years ago, plants of Cyclamen latifolium, after they had flowered in the greenhouse. He took me to this spot and there they were flowering almost as well as plants indoors in pots, notwithstanding the fact that they had remained in the open three successive winters. Lachenalias growing healthily in the open were another surprise, both L. Nelsonii and L. tricolor being represented by fine plants that had just finished blooming.

The extensive wood at Walhampton contains much fine timber and one tree of especial interest is a Yew with a girth of ten feet seven inches, and a bole that is clear of branches for fifteen or sixteen feet, a most unusual development, for it has the appearance of a standard tree on a huge trunk. This Yew is of immense age and in perfect health.

Such are the principal features of these remarkable gardens, whose owners, as become true garden lovers, find pleasure in allowing others who are interested, to inspect them, for they are thrown open to the public on Sundays during the summer, a small fee being charged, which is generously allotted by Viscount and Viscountess St. Cyres to the Gardeners' Royal Benevolent Institution and the Lymington Cottage Hospital. *G. F. T.*

VEGETABLE GARDEN.

THE BROCCOLI.

(Brassica oleracea botrytis, D.C.)

In endeavouring to trace the early history and development of the heading Broccoli, the lack of reliable information is painfully apparent, consequently there exists such a diversity of opinion respecting it amongst botanical writers that the study is somewhat bewildering, one school assuming that Broccolis have been produced from Cauliflowers, and another affirming "that the cultivation of the Broccoli dates back to a more remote period than that of the Cauliflower as the name at least would lead us to infer," and adds "The Sprouting or Asparagus Broccoli represents the first form exhibited by the new vegetable, when it ceased to be the earliest Cabbage and was grown with an especial view to its shoots. After this, by continued selection and successive improvements, varieties were obtained which produced a pure white head, and from these was developed the Cauliflower."

How are we to reconcile these two very different positions? The name of the plant gives us some clue. The word Broccoli is the plural form of the Italian word *Broccolo* which means a shoot or sprout when applied to a plant.

As the Italian name was given by Dodonaeus in the sixteenth century as Broccoli, and the Italians understand to-day by Broccoli the sprouting form, which is a highly esteemed vegetable in that country, it would appear that the sprouting was the earliest form developed seeing that no heading variety is then mentioned. The Early Sprouting form grown in England to-day appears to be a more slender development of this plant, but of that, more anon.

By the time that Miller published the seventh edition of his *Dictionary*, 1759, the heads of the Broccolis he obtained from Italy (particularly the white variety) must have been considerably compressed to warrant his writing that "the white Broccoli approached so near to the Cauliflower as to be with difficulty distinguished from it." If Miller's Cauliflowers were anything like that pictured by Dodonaeus (see *Gard. Chron.*, June 21, p. 383), we can recognise the justice of the observation.

On the whole, I am of opinion that the sprouting Broccolis, purple and white, were first in point of time, then appeared the Cauliflower in the very imperfect form illustrated by Dodonaeus, and this was followed by heading Broccolis as we now know them. These heading Broccolis were not necessarily white, on the contrary there were, and are, both purple and green varieties, but the white ultimately obtained the preference, and in England, at any rate, the other colours are not often seen. The names of the first English varieties are not easily found. In 1793, John Mason, 152, Fleet Street, London, catalogued the following: Early Purple, Late Purple, Green, Dwarf Spring and White; his successors catalogue more than fifty varieties to-day and their list is by no means complete.

In 1828, one writer mentions as then in cultivation the varieties quoted by Mason, and adds to them Siberian (a purple variety) and Cape which, as the name implies, was a heading variety. Hammond's White Cape was followed by Grange's Autumn, which it was affirmed was only kept true to season by being regularly hybridised with Walcheren Cauliflower, a variety which, on account of its hardiness, lateness, and solidity, was often quoted as a Broccoli. The advent of Michaelmas White, Self-protecting Autumn, followed later by Winter Mammoth has practically extinguished the demand for Grange's and Hammond's White Cape, but Walcheren is still grown extensively and serves to connect the autumn varieties with winter sorts such as Backhouse's, Osborn's, and Snow's, which in the hands of capable gardeners provided a most acceptable dish when the winters were not too severe. To these winter varieties were added some Cornish or Penzance strains, heading in from January to March, and specially adapted to the climate of the south-west, also some dwarfer and larger strains of Early Spring White such as Adams's, Ambler's, Haywood's Queen, etc., which were hardy enough to be grown well up into the Midland and Eastern Counties. Knight's Protecting (which it is said we owe to a famous President of the London Horticultural Society) created quite a sensation and is still highly esteemed, and Dilcock's Bride carried on the supply until April had begun.

Side by side with these pure white varieties, a sulphur-coloured variety which was larger, more solid, and hardier than the paler coloured sorts appeared in the Portsmouth district under the name of Brimstone, Portsmouth, or Sulphur, and after having existed for more than a century is a reliable and popular variety to-day. A paler coloured Broccoli named Chappell's Cream has since appeared; it is equally hardy, is better protected, and of a more pleasing colour.

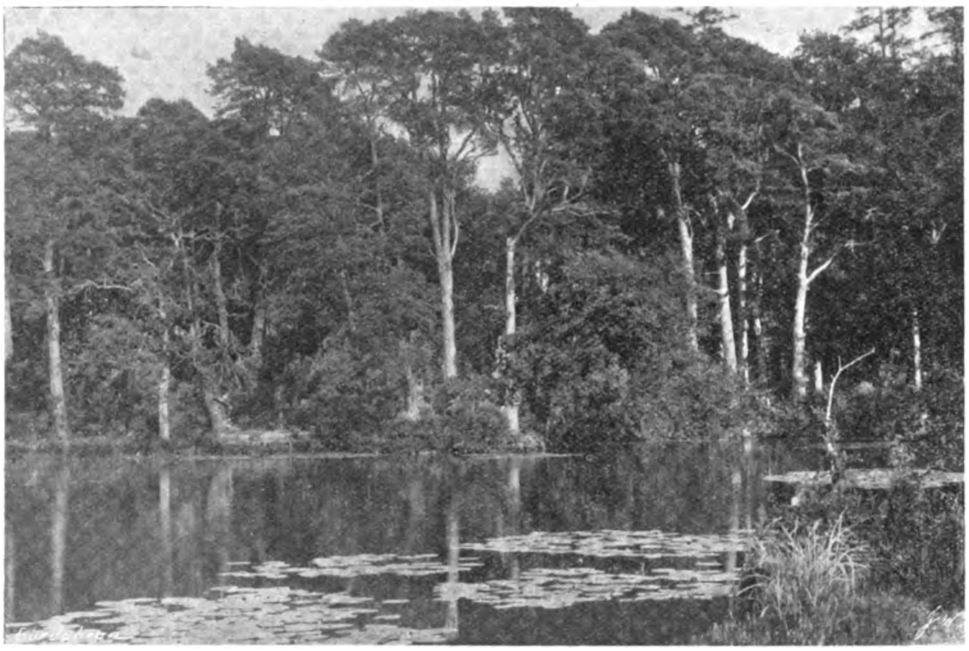

FIG. 173.—WALHAMPTON: LAKE AND PINE WOODS.

A brief digression may here be permitted to call attention to some remarkable happenings in connection with the winter and early spring section during the lifetime of many of the active seedsmen of the present generation. Visitors to the Paris markets during January and February were struck with the splendid Broccolis displayed there at that early season. The heads were well protected, very solid, of good colour and most attractive appearance, models of what a good Broccoli should be. As a result of fuller investigation and careful tests it was found that as regards hardiness these were quite equal to the best English varieties, in addition to which the heads were larger and the plants more uniform in character. They were consequently introduced into England and speedily became popular, and in the Peerless, Springtide, and Feltham strains, which have been developed by special selection and culture; they head in nicely from the middle of January to the middle of March, by which time a succession of the before-mentioned English varieties is ready for the market.

Resuming our study of mid-season Broccolis. Leamington rightly claims pride of place. It was raised by F. Perkins of Leamington, and sent out by Waite, Burnell, Huggins and Co. who gave it a splendid advertisement which was rewarded with brilliant success. As an early April Broccoli it is safe to affirm that it has no equal at the present day except what is provided by its own synonyms.

The varieties April Queen, New Mammoth and Reading Giant keep the table supplied until until the end of April when the battle for the premier position as a good and really late Broccoli begins. The name of the aspirants for the position is legion, and includes such standard sorts as Cattell's Eclipse, Last of All, Late Queen, Methven's June, Ledsham's Latest of All (which was certificated by the Royal Horticultural Society as one of the finest and latest varieties in cultivation, for it has heads a white as snow), Model, and Omega.

With these the gap between Broccolis and early Cauliflowers is easily bridged over. In addition to the varieties named, there are more than a score of really good sorts, each of which has special merits of its own.

SPROUTING OR ASPARAGUS BROCCOLI.

(BRASSICA OLERACEA BOTRYTIS ASPARAGOIDES).

THIS section deserves special mention as it provides an abundant supply of nutritious and acceptable food from Christmas to April. In the Italian varieties rather thick fleshy sprouts shoot forth from every axil, and these are used like green Asparagus, hence the name. The English varieties include purple, green, and white; early and late, tall and dwarf, and are treated in the same manner as the Kales.

Those who like to have a whole Broccoli to themselves should grow Sutton's Bouquet or Nine Star, each of which produces nearly a dozen small white heads which are very acceptable, and one may "cut and come again."

A new form of the one time popular Turnip-Broccoli named Ruvo has recently been introduced in Italy and is described by the raiser as "strong, but tender stems and sprouts; highly salubrious." This surely should supply a world's need! *S. B. Dicks*

CONCERNING RHUBARB.

EVER since Mr. E. A. Bunyard kindly put me in practical touch with the variety or sort of Rhubarb which he calls Greengage, it had been my intention to make comparative analysis of it against the ordinary red sort, for from the markedly softer flavour it appeared likely that some difference would be revealed. Analysis has at last been done with the following results:—

	GREENGAGE.	RED (var. unknown)
Total acidity (juice) ...	182	180
Acidity due to acid salts (juice)	52	25
Specific gravity (juice)	1015	1013
Oxalic acid (juice)—		
gram per 100 cc	0.165	0.288
as acidity ...	27	57
Oxalic acid (whole stalk)—		
per 100 grams wet	0.259	0.398
per 100 grams dry	4.214	9.498
Dry weight per 100 grams	6.16	4.19

The acidities are reckoned with B.D.H. Universal Indicator on the International Standard as the number of cubic centimetres of "normal" acid required per litre; those due to salts were estimated approximately by titration with mineral acid against dry Tropæolin 00. Similarly-sized stalks were used in the two cases.

It will be seen that though the total acidities are not far apart, the oxalic content is roughly twice as great in the red sort as in Greengage. After examining the juice it occurred to me that perhaps some oxalates might be locked up in rhaphides in the cells and thereby have escaped. To combat this, chopped stalks were stewed for many hours with hydrochloric acid. The figures obtained are recorded above under "whole stalk," and show that the red contains much more oxalic acid and oxalates than the Greengage; this difference becomes still more marked when reckoned on the dry weight, which is relatively greater in the Greengage.

Whilst there are those who avoid Rhubarb through dislike of its taste, others do so on account of the oxalic acid it contains; in any case it is possible to avoid some degree of the latter constituent by using the Greengage variety; indeed, I am rather contemplating limiting my plants to those of this sort. It may be noted that the green sort even at its earliest does not cook to a beautiful pink colour, so that they who eat by eye rather than palate may not prefer it; curiously, the acid extract yielded a distinct separation of a red lake which was not to be seen in that from the red sort. When made into jam, as when stewed, the Greengage variety has quite a character of its own. Hence it may be commended for trial by Rhubarb lovers. *H. E. Durham*

HARDY FRUIT GARDEN.

RAISING SEEDLING APPLES..

THE raising of Apples, Pears and Plums from pip and stone, embraces an intense interest, and I fully believe many useful varieties may still be introduced by sowing pips from the late and very latest keeping varieties of Apples and Pears. We are well supplied with early and second season sorts, therefore, a few more with later keeping qualities would no doubt prove useful and an asset commercially, as after all, there is no hardy fruit that can compare with a well-grown English Apple.

Prepare a soil as for general seed-sowing, making the same moderately firm in pot or pan. Select pips from any of the late varieties, viz., Dumelow's Seedling, Annie Elizabeth, Blenheim Pippin or Northern Greening, and the same with dessert varieties. Place the seeds about an eighth-of-an-inch apart; cover them with about an eighth-of-an-inch of soil and place a piece of slate over the top of the pot, standing the latter in a warm greenhouse.

The seedlings should appear above the soil in about six weeks. Place them in a cold frame, as this method protects the tender growth from the cold winds and assists the strength of the growth.

Transplant in the following autumn in rows about six inches apart, keeping the soil well hoed during the summer. Seedlings raised by myself about four years ago are showing a few fruit buds, this being brought about by annual root pruning, and keeping the trees trained as cordons.

There is plenty of scope for raisers of hardy fruits, for we have none too many fine late keeping Apples, including large and high quality culinary sorts with keeping qualities until June and July; or dessert sorts of Cox's Orange Pippin type that will keep until April and would always find a ready market. *Pomona.*

HOME CORRESPONDENCE.

Marvel of Peru (see p. 336).—Mirabilis Jalapa is one of the numerous old plants in British gardens which have almost dropped out of the knowledge of the gardener—professional or amateur. It is a very distinct subject and in past years I have seen it employed for summer bedding with unusual effect. It is a perennial, but is best treated as a half-hardy annual, sowing the seeds early in heat under glass and planting the seedlings out in May. I question if anyone now grows it for more than one season, although the tuberous roots, if stored free from frost in winter, may be treated like pot roots of Dahlias. I have found that unless the seeds are sown very early under glass in heat the plants do not flower until late in the season, while young plants are more vigorous and floriferous than those produced by the old tubers. When I grew M. Jalapa I left some roots which had not flowered, but had made big tubers, in the ground in very sandy dry soil in a warm place, and found in spring that they had not been injured by the frost. They started late into growth and were not at all satisfactory. Seeds are still commonly offered and those who wish to try the Marvel of Peru should secure some in early spring. *S. Arnott.*

——Mirabilis Jalapa is the old-fashioned Marvel of Peru, a very quaint border plant that is easy to cultivate. It is bushy in growth, and bears flowers of varied colour from white to crimson. Seeds should be sown under glass in early spring, as in the case of half-hardy annuals, gradually hardening the seedlings and planting them out-of-doors in the last week in May or the first week of June, when danger from frost is over. The roots, which are black, should be lifted in autumn as is usual for Dahlias and stored in sand through the winter, planting them outside again when frost is over. In warm, dry climates the roots may be allowed to remain in the soil over the winter and protected with coal ashes. *W. E. Wright, Henstaff Court Gardens, Pontyclun, S. Wales.*

Gardeners and Their Wives.—I could have obtained several positions lately as a result of my advertisements in your valuable paper, but why is it that private employers cannot, or will not, understand that when they engage a skilled man they do not engage his wife as well? Many employers seem to think that a gardener's wife ought to give up her own home life and work in the employer's home instead. This to my mind is most unfair, and I, personally, am fond of my home and home life and did not marry my wife on purpose to give her the opportunity of working for other people, and so long as my health permits I have no intention of letting her do so. I do wish from the point of view of fair play that more gardeners would stand up for their rights in this respect—I fear very few do so. Excuse me for writing at some length on this point, but it has occurred to me that many private employers are most unfair regarding this matter. Why is it? *Homer.*

Descriptive Labels for Botanic Garden Use.—Very effective efforts are being made at Cambridge to advance the cause of botanical science. Some time ago a highly original and instructive guide to the Botanic Garden was published by the Director, Mr. Humphrey Gilbert-Carter, and he has just now published a book of some 149 descriptive labels (see p. 382), which are calculated to be of value not only for other Botanic Gardens but it may be suggested for public park and gardens wherever the valuable and entertaining information they give is required.

Many establishments indeed would have considerable difficulty in getting the information together, and these labels are ready for use, except for the mounting, which can be provided of any kind that may be preferred, though to utilise all the labels as published two books must be purchased because the printing is on both sides of the paper. It is intended, however, or expected that the labels will be reprinted. There is a useful and interesting preface in which printing and mounting is discussed. For use in the Cambridge Botanic garden these labels are printed on green waterproof paper made at the Willesden Paper Mills. Valuable information is given with regard to protective varnish, and mention is made of an inexpensive label prepared by typewriting or writing with Indian Ink on a good white card, which is afterwards soaked in melted paraffin wax. It is stated that "should any of the labels find favour they can be obtained printed on waterproof paper for a shilling each post free, and the profits of the transaction will go to the Cambridge University Botanic Garden, which always needs all it can get." The plan of the labels is well shown in the review on p. 382. The selection includes both tender and hardy plants and deals with such species as a guide might wish first of all to point out. This little book appears to inaugurate at least two new departure, one being the provision for sale of a descriptive label, and the other the avoidance of all labour in the taking of notes by the purchase of a little book, a facility which students ought to value; all who are interested in labels and labelling should possess it and they will be sure to appreciate the merits of this welcome contribution to a great subject. With a note of sadness, perhaps, the book is dedicated "In Memorium J. B Peace." Peace was University printer and for many years a faithful friend of the Botanic Garden. It is stated that he took great interest in the labels and that by the kindness of friends found by him, and others who have joined their ranks, the Botanic Garden has had to pay for none of them. *L.*

Planting of Trees of Rememberance.—Gardeners can to do much to further the good practice of planting Trees of Rememberance, by making suggestions at the right time and as occasion occurs. Our Royal Family has set us a good example in this respect, and I have records of several trees planted by H.M. the King, H.M. The Queen, the Duchess of York, and other members of the Royal Family. Most gardeners are justly proud of their profession, yet some are too retiring. If they suggested to their employers that a tree should be planted on the occasion of the birth of a child, the suggestion would generally give pleasure. Probably no plant or flower is more beautiful than a fine Apple, Pear, Plum, or Cherry tree in blossom, and among the good deeds which may be left behind by man is the planting of trees. A living tree is better than a stone monument. The tree planted by a friend may be a daily reminder of him. *Laurence J. Cook.*

Heeria elegans (see *Gard. Chron.*, p. 384).—This trailing Melastomad may be grown in pans or half-pots suspended from the roof in a cool, airy greenhouse. In small pots it makes an uncommon edging for the greenhouse staging. Planted in a border along the top of a low wall in the cool greenhouse, the trailing growths hanging over the wall face, the effect is such that one wonders why this distinct and handsome plant is so seldom seen in gardens. The flowers are one inch in diameter, in colour rose-purple, of superb depth and clearness of tone. Four claw-hammer like, and four white-tipped stamens are conspicuous. The small, opposite, entire leaves are bright green, with a row of hairs along the margin, pointing to the apex of the leaf. ***F.***

SOCIETIES.

ROYAL HORTICULTURAL.

June 24 and 25.—The ordinary fortnightly show of the Royal Horticultural Society, held at Vincent Square on the above dates was a particularly pleasing event. Delphiniums, Sweet Peas and Paeonies, were shown in fine condition, and there were numerous exhibits of hardy herbaceous plants. Owing to the close proximity of the National Rose Society's Meeting, Roses were almost entirely absent, and Orchids were few. There was also a very good collection of vegetables and one consisting of a unique display of Lettuces.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Messrs. Gurney Wilson (Secretary), Jas. O'Brien, C. J. Lucas, Arthur Dye, H. T. Pitt, Henry H. Smith, H. G. Alexander, J. E. Shill, Charles H. Curtis, John C. Cowan, Richard G. Thwaites, J. Wilson Potter, Frederick Hanbury and A. McBean.

First Class Certificate.

Odontoglossum Doreen var. D. A. Cowan (*Empress of India* × *eximium*), from J. J. Bolton, Esq., Claygate Lodge, Claygate (gr. Mr. S. Lyne). A superb Odontoglossum with flowers of the largest type and perfect in shape. The spike bore five flowers heavily blotched with mauve-purple, with slight white markings and narrow silvery-white margins and tips.

Award of Merit.

Cypripedium Godefroyae leucochilum giganteum. From Sir Jeremiah Colman, Bt., Gatton Park (gr. Mr. J. Collier). One of the largest and finest of the pretty section whose standing either as a species or hybrid is still an open question. The large, wax-like flower is cream-white and all the segments are broad and well displayed. The upper sepal has heavy claret-purple blotches at the base with thin purple lines above, the petals having heavier and larger claret-purple blotches; the lip is cream-white.

Botanical Certificate.

Dendrobium laevifolium, from Sir Jeremiah Colman, Bt. A very remarkable dwarf species whose origin and habitat was not disclosed. The plant was densely tufted, the very small pseudo-bulbs bearing thin, green, broadly lanceolate leaves. The specimen was furnished with about forty short spikes of two or three flowers each, and the inflorescences nestled beneath the leaves; in general appearance the flowers recalled the pretty Saccolabium ampullaceum, the colour being of the same bright mauve tint, but in structure and arrangement they are quite dissimilar.

Groups.

A Silver-gilt Banksian Medal was awarded to J. J. Bolton, Esq., Claygate Lodge, Claygate, for one of the best and most select groups of Odontoglossums and Odontiodas yet staged. The most striking plants were Odontioda magna rubra which secured a First Class Certificate at Holland House show in 1921 and which now bore a grand spike of nineteen bright cinnabar-scarlet flowers of large size and perfect shape; Odontoglossum San Juan, a finely coloured form with white tips to the segments; the finest form of O. Doreen, and other hybrids in which the deep violet-blue was shown in the flowers, and several grand forms of O. eximium. All the plants were splendidly grown and well flowered; a Silver Lindley Medal was awarded to Mr. S. Lyne, Mr. Bolton's Orchid grower, whose reputation was well-known when he was grower to the late Mr. J. Gurney Fowler.

Messrs. Cowan and Co., Southgate, were awarded a Silver Banksian Medal for a neat group in which the most showy plants were a selection of their fine pure white-petalled strain of Lælio-Cattleya Canhamiana and L.-C. Aphrodite, the large broad labellum of which, of a deep claret-purple colour, shows up specially well. As a central plant the large white Cattleya Mossiæ Wageneri, with three spikes of two flowers each, was conspicuous. A fine specimen of Coelogyne pandurata with a large spike of scented, emerald-green flowers with black markings on the lip, and others indicated that species and fine varieties of species are yet capable of attraction.

Other Exhibits.

Sir Jeremiah Colman, Bt., Gatton Park (gr. Mr. Collier) showed cut spikes of very rare species, including Bulbophyllum inflatum, B. orthoglossum and B. gastulatum with elongated sepals of a mahogany-red colour.

The Hon. MacLaren and Lady Aberconway, Bodnant, N. Wales (gr. Mr. F. C. Puddle) sent Cypripedium Virgo (Psyche × Godefroyæ), a charming large white flower prettily spotted with violet, the lip having but few very small spots.

Messrs. Charlesworth and Co., Haywards Heath, showed a fine plant of their Odontioda Cornelia (Diana × Madeline) with a spike of eleven cinnabar-scarlet flowers with a gold tinge.

Floral Committee.

Section A.—*Present*: Messrs. Henry B. May (in the Chair), J. F. McLeod, H. J. Jones, E. R. Janes, M. C. Allwood, J. B. Riding, G. W. Leak, D. B. Crane, H. R. Darlington, Chas. E. Pearson, W. P. Thomson, Hugh Dickson, W. Stephens, Arthur Turner, W. N. Page, W. B. Gingall, and W. D. Cartwright (Secretary).

Section B.—Mr. Gerald Loder (in the Chair), Sir W. Lawrence, and Messrs. W. J. Bean, Jas. Hudson, G. Reuthe, G. Harrow, F. G. Preston, Reginald Cory, W. B. Cranfield, C. Williams, R. W. Wallace, Amos Perry, G. Yeld, T. Hay, C. T. Musgrave, and R. C. C. Notcutt.

First Class Certificates.

Cordyline austrachis. This beautiful plant is a hybrid between Cordyline australis and C. Banksii erythrorachis. The inflorescence exhibited showed a great improvement on either parent, specimens of which were exhibited. The panicles are large and branching and the small, campanulate flowers are very fragrant. Shown by Reginald Cory, Esq., Duffryn.

Cornus Kousa var. chinensis.—A varietal form of Cornus Kousa with very attractive large flowers, the bracts of which are cream coloured, tinged, on ageing, with rosy-purple. Shown by The Director, The Royal Gardens, Kew.

Awards of Merit.

Carpenteria californica, Ladham's var.—A magnificent, large-flowered form of this ornamental shrub with fragrant, white flowers, measuring about 3½ inches across. Shown by Messrs. B. Ladhams, Ltd., Southampton.

Cladrastis tinctoria.—A beautiful Leguminous shrub producing long panicles of fragrant white flowers and possessing handsome foliage.

Rosa mirifica.—This species is a native of South-west United States. The single flowers are large and of a rosy lilac colour, heightened by the yellow stamens. The leaflets are crenately-dentate and the species is said to produce a second crop of flowers in the early autumn.

Genista cinerea.—This South-European species was shown in excellent condition, the branches being smothered with axillary, deep yellow flowers. The leaves are simple and lanceolate, and pubescent on both sides. This and the two foregoing shrubs were shown by The Director, The Royal Gardens, Kew.

Dimorphotheca pluvialis.—A very charming Cape Marigold with white guard petals banded with purple at the base. The reverse side of the petals is yellow and slaty-blue. Shown by **The Director**, R.H.S. Gardens, Wisley.

Rhododendron crassum.—This species, belong-to the 'Maddeni' series, was first discovered by Delavay in 1889 in West Yunnan. It is a shrub growing about fifteen feet, and the distinctly fragrant flowers are borne in trusses of three or four blooms. The texture of the petals is waxen-like and the blooms are pure white, the stems being coloured red.

Rhododendron eriogynum.—We are indebted to Mr. G. Forrest for the introduction of this species, who found it growing east of the Tuli Lake in 1914. It belongs to the 'irroratum' series and possesses rich salmon-crimson flowers. It has not proved to be very hardy in this country. The two above plants were shown by T. H. **Lowinsky**, Esq., Sunninghill.

Delphinium Norah Ferguson.—This is a charming variety carrying stately spikes of semi-double flowers. The individual blooms are large, semi-double, and neatly disposed in full spikes. The colour is pale blue blended with soft pink-mauve. Shown by Mr. T. **Carlile**, Twyford.

Paeony Sarah Bernhardt.—A magnificent large double variety with very full flowers. The colour is a delicate shade of pink; the tips of the petals shade to lighter pink, giving the flower a very silvery tone. It is sweetly fragrant and some of the blooms measured as much as nine inches across.

Paeony Mdme. Emile Lemoine.—A wonderful variety and one which will be sure to be very popular. The colour is white, the centre petals of the full flower being slightly tinged with salmon-pink. Both varieties were shown by Messrs. R. H. **Bath**, Ld., Wisbech.

GROUPS.

Messrs. **Blackmore and Langdon**, contributed a magnificent group of Delphiniums in the corner of the Hall, the varieties being represented by towering spikes of perfectly grown specimens arranged in large epergnes. Of the newest varieties there were immense spikes of Purple King, formed of large individual blue and violet flowers; Edward Bromet, a variety which eclipses the popular Rev. E. Lascelles; Phyllis, a splendid spike of lilac-pink and blue flowers with white centre; Mrs. Shirley, rich mauve; Triumph, with tubular Hyacinth-like flowers of a distinct shade of colour, best described as light lavender; Queen of Bath, azure-blue; Mrs. Watson, a most exceptional blending of vivid blue and mauve, and Glory, a very full spike with the undeveloped blue flowers constrasting delightfully with the fully opened lilac-coloured blooms. There was also an unnamed, perfectly double seedling with pink flowers.

Close by Mr. T. **Carlile** showed a worthy collection of Delphiniums and the newer introductions included Nora Ferguson evidently a very free flowering plant with its pale blue and rosy-mauve flowers produced in a well-filled spike; Mrs. Carlile, a new variety, the individual flowers forming a large spike of pale blue and lilac mauve; Mrs. Robt. Ascroft, a beautiful variety with its rosy-mauve and blue flowers arranged in a well-finished spike; Blue Lagoon, rich deep blue; Pannonia, a distinct variety with daintily crimpled petals; Queen Mary, large light blue flowers with white centre; and Mrs. A. C. Kenrick, a well filled spike of blue and mauve flowers.

The Orpington Nursery Company was responsible for an effective display of Delphinums arranged against a black velvet background. The foremost varieties were Blue Bird, of rich, deep Gentian-blue colour and black centre; King George, a large spike of vivid blue flowers; Harry Smetham, a variety of great merit with semi-double porcelain-blue flowers; T. G. Baker, a white centred rich blue spike; Navy, forming a splendid, perfect spike of blue flowers; and Mrs. H. Kay, a charming combination of violet and blue. Associated with the Delphiniums were a number of Irises, of which, Sunset, yellow standards and grey-blue falls edged with yellow; Saffrano, a late yellow variety with rich orange-yellow crest; and Zulu, one of Mr. Bliss's seedlings of the Dominion type are a selection.

Messrs. **Wallace and Co.** displayed a group of Irises and Paeonies arranged on a low length of double-width tabling, interspersing the vases of flowers with sprays of Acer foliage. Of Irises there were beautiful vases of Rosalind, rosy-lilac; Susan Bliss, lilac-pink; Ambassadeur, with velvety, dark purple falls; Prospero, slate-blue standards and blue falls; Camelot, white, veined with blue; and Iris fulvala violacea, a moisture loving plant with wine-coloured blooms. Paeonies were represented by good vases of Madame Calot, soft shell pink; Madame de Verneville, silvery white; Festiva maxima, pure white, splashed, in some flowers, with carmine; Faust, outer petals shell pink and well filled centre of creamy-white, and Reine de Fleurs, old rose. There were also numbers of named varieties of hybrid Lilies raised from L. Martagon and L. Hansonii.

Just inside the entrance Messrs. **Sutton and Sons** staged, in truly admirable fashion, a large group of Sweet Peas, with the flowers arranged in mammoth columns along the back and in large bowls disposed at different levels on pedestals in the foreground. Some fifty varieties were exhibited, and prominent sorts were Doris, glowing cerise; Powerscourt, rich lavender-mauve; Mascotts Helio, rose heliotrope; May Unwin, orange-scarlet; Gloriosa, deeper than the foregoing variety; Mrs. Tom Jones, lavender-blue; George Shawyer, rose-pink; Butterfly Spencer, a delightful combination of old rose and white; Burpee's Giant White; and Sutton's Black-seeded Cream, a very deeply tinted flower.

On the other side of the entrance Messrs. **Robert Bolton and Sons** made a very effective display of finely grown Sweet Peas and employed golden wicker baskets, epergnes and bowls for displaying the flowers. Their novelties included Wembley, lavender; Empire, rose; Mammoth, orange-scarlet; Comrade, apricot pink; Angele, with rose-mauve standards and lavender-blue wings; Supreme, clear-pink; Daffodil, deep cream, Wizard, orange-scarlet, and Picture, cream-pink.

Messrs. **John K. King and Sons**, Ltd., also had a very comprehensive display of Sweet Peas tastefully arranged in baskets and vases against a white background. Of the numerous varieties those worthy of especial mention were Celeste, lavender; Comrade, apricot-pink; Powerscourt, lavender; Jack Cornwall, deep violet; Mary Rose, old rose and Wild Rose, somewhat lighter in shade than the preceding variety.

Hardy herbaceous plants were displayed in excellent condition by numerous firms, and Messrs. **John Waterer, Sons and Crisp, Ltd.**, showed Delphinums, Lupins and Gaillardias, with a foreground of Alpines. Mr. F. G. **Wood** also had a meritorious group with magnificent specimens of Veronica cupressoides in full flower, while Messrs. **Carter Page and Co., Ltd.**, had a miniature rock garden with pool, as well as a display of herbaceous plants. Messrs. W. H. **Rogers and Son, Ltd.**, displayed hardy flowers and Alpines in great variety, and Mr. W. **Wells**, Jnr., was responsible for bold masses of general herbaceous subjects, as were also **The Chalk Hills Nurseries**.

Messrs. **Godfrey** and **Sons** made a feature of Regal Pelargoniums, Double White Stocks, Canterbury Bells, Poppies and varietal forms of Scabiosa caucasica, while from Messrs. **Bakers**, Ltd., came a group of named varieties of Aster subcoeruleus, the plants being taken from the open to show the habit and floriferousness of the varieties. Betty and Peggy were two extra large flowers of slightly different shading of lilac mauve, both produced on stiff, erect stems, the latter possessing a double row of guard florets.

Messrs. **Rich and Co.** staged the richly-coloured Gaillardia The King, in fine form, amongst other herbacous plants, and Messrs. **Lowe and Gibson** had a display of Irises, Gladioli and Pinks, the last including The Imp, a pretty, sweetly fragrant double flower of claret colour.

Stove and greenhouse plants were admirably arranged by Messrs. **John Peed and Son, Ltd.**, who had a large number of finely coloured Caladiums and Crotons, together with large flowered and magnificently grown Gloxinias and Streptocarpuses represented by many shades of bright colours. There were also double white and violet blue Petunias, beautifully trained and very freely flowered, as well as specimens of the graceful rose-scarlet and yellow Gloriosa Rothschildiana.

A collection of two dozen large vases of Sweet Peas in excellent condition, was staged by Major **Geoffrey Lubbock** (gr. Mr. Lowe), Croft House, Pangbourne. Matchless, deep crimson; Charity, red; Powerscourt, lavender-mauve; Dignity, pink, and Edna May, white, were a few of the best varieties.

A very pleasing group of Bermuda Lilies grown for the Commissioner for Bermuda by Messrs. L. R. **Russell**, Ltd., attracted considerable attention. One bulb was used to a 32-sized pot, and the spikes carried beautifully clean foliage from tip to base. The flowers are large and may be considered a greatly improved form of L. longiflorum and many of the plants had spikes of seven blooms. The bulbs, we understand, were grown in Bermuda.

Messrs. B. R. **Cant and Sons**, Ltd., brought a good selection of Roses arranged in tall epergnes. Outstanding varieties were Lady Roundway, rich coppery-orange; Lady Dixon Hartland, shell-pink; Sovereign, golden-orange, Lemon Pillar, rich cream; Mrs. Henry Morse, a finely-shaped bloom of silvery-pink colour; and Cupid, a huge single light salmon-pink bloom. Roses were also shown by the Rev. J. H. **Pemberton**, who had fine masses of The Adjutant, a rich rose-cerise flower, sweetly fragrant, and of good form; Star of Persia, a showy hybrid variety, with semi-double deep yellow blooms; Isobel, a large, single, rich rose-pink flower, with yellow centre; and The General, a new variety with very full flowers of deep rose shade.

Paeonies were shown in magnificent form by Messrs. R. H. **Bath**, Ltd. Of the many varieties exhibited, exceptionally fine blooms were shown of Sarah Bernhardt, very large soft pink; Marie Lemoine, creamy-white; Lady Carrington, white, flushed with pink; Her Grace, pale salmon-pink; E. G. Hill, pink; Duchess de Nemours, white; Solange, white flushed with salmon-pink; La Fiancée, white; and Mdle. Emile Lemoine, an exquisite bloom. The above were all double flowers. Among single forms were General Nogi, wine-coloured with yellow centre, and Mandarin, a magnificent deep rose-pink bloom. Delphiniums and Gladioli were also shown in this group.

Messrs. B. **Ladhams**, Ltd., staged hardy herbaceous plants in quantity, and the feature of this exhibit were the varietal forms of Campanula persicifolia. Of these Fairy Queen and Queen of June were two good blue varieties, whilst white forms included Snow Queen and Snowdrift. Messsrs. **Barr and Sons** showed a miscellaneous group consisting mainly of

Delphiniums and English and Spanish Irises, while from Mr. Charles Turner came a display of flowering shrubs rich in hybrids of Philadelphuses.

Mr. C. Engelmann had a neat collection of perpetual-flowering Carnations, and Messrs. Allwood Bros. were also responsible for a pretty group of varieties of Dianthus Allwoodii, perpetual-border Carnations and perpetual-flowering varieties.

Hydrangeas, Ericas and other greenhouse plants were included in the group from Messrs. Stuart Low and Co., who also had Roses and Carnations in quantity.

Mr. J. C. Allgrove had a group of hardy herbaceous plants including stately sprays of Eremurus Warei, apricot-buff; E. magnificus, sulphur-yellow; Rodgersia aesculifolia, R. Purdomii and the deep orange Trollius Ledebouri; Paeonies were also shown in this group, and there were some fine vases of Mons. Chas. Leveque, flesh-pink; Vesta, deep silvery-rose, and Duchesse de Nemours, white.

Lupins in variety were staged by Messrs. Hardness and Co., and groups of hardy flowers and alpines were also exhibited by Messrs. Maxwell and Beale and Messrs. Gavin Jones and Ingwerson.

Messrs. James Kelway and Son had a corner group of Delphiniums and Paeonies, the former including mammoth spikes of Dusky Monarch, deep violet-blue; Zinfandel, deep violet and blue; Gaby Deslys, pale blue and mauve, and Kelway's Premier, rich Gentian-blue. Of Paeonies there were Kelway's Peace, white, Lt. Warneford, V.C., rich rose-purple; Queen Alexandra, white with cream centre; Sir Ernest Shackleton, deep rose, and Lena Ashwell, a single, rose-purple flower with the petaloid stamens quaintly marked rose and gold.

Messrs. M. Prichard and Sons showed a collection of hybrid Dianthuses and hardy flowers, while Messrs. Pulham and Sons had a pleasing display of Alpines set in rock work.

Messrs. Skelton and Kirby and Mr. H. G. Vigers contributed a display of hardy flowers, as did also Mr. G. Reuthe, who had a very interesting group of hardy Orchids, Liliums, and flowering shrubs.

Messrs. Reamsbottom and Co. showed their delightful strain of Anemone St. Brigid, and the Misses K. and E. Hopkins had a small group of hardy flowers.

T. H. Lowinsky, Esq., exhibited bowls of lovely flowers of Magnolia parviflora and M. Watsonii. Messrs. J. Carter and Co. showed a bowl of a very late-flowering, white Narcissus of the Polyantha type.

Harding Cup for Paeonies.

Although there were two exhibits of Paeonies entered for the Harding Cup, the Cup was not awarded, as the judges considered the flowers to be unworthy of the award.

Medal Awards.

Gold.—To Messrs. R. Bolton and Sons.

Silver-Gilt Banksian.—To Messrs. R. H. Bath; Messrs. Blackmore and Langdon; Messrs. Sutton and Sons; Messrs. R. Wallace and Co.

Silver Banksian.—To The Orpington Nurseries; Messrs. Barr and Sons; Messrs. B. R. Cant and Sons; Messrs. Carter Page and Co.; Messrs. Harkness and Sons; Messrs. J. Peed and Son; Messrs. Allwood Bros.; Mr. G. Reuthe; Messrs. Tucker and Son; Messrs. Rogers and Son.

Bronze Banksian.—To Rev. J. H. Pemberton; Messrs. M. Prichard and Sons; Messrs. Rich Bros; Messrs. L. R. Russell; Messrs. S. Low and Co., Mr. J. C. Allgrove; Messrs. Bakers; Mr. T. Carlile; The Chalk Hill Nurseries; Mr. C. Engelmann; Messrs. J. Kelway and Son; Messrs. J. K. King and Co.; Messrs. Ladhams; Major Geoffrey Lubbock; Mr. Chas. Turner; Messrs. Waterer, Sons and Crisp; Mr. W. Wells, Jnr.; Mr. F. G. Wood.

Fruit and Vegetable Committee.

Present: Messrs. C. G. A. Nix (chairman), Jos. Cheal, W. G. Lobjoit, H. S. Rivers, P. C. M. Veitch, Geo. F. Tinley, E. Laxton, E. Beckett, A. Bullock, G. Reynolds, T. Pateman, J. C. Allgrove, H. Prince, E. Neal, W. Bates, W H. Divers, H. Markham, H. V. Taylor, and A. N. Rawes.

Special medals were offered by Messrs. Bunyard and Co., Ltd., for exhibits of Strawberries on this date. There were only two exhibits, by Sir Charles Nall-Cain, Brocket Hall, Hatfield (gardener, Mr. T. Pateman), and Mr. G. Davis, The Old Manor House, East Moseley, respectively. Those staged by Mr. Pateman were of exceptionally fine quality, and included the varieties Hatfield Victor, Keen's Seedling, Hatfield Premier, Leader, King George, and Royal Sovereign. Mr. Davis showed two plates only of the Royal Sovereign variety. The Silver Bunyard medal was awarded to Sir Charles Nall Cain's exhibit.

Messrs. Laxton Bros. showed, as a non-competitive exhibit, a number of dishes and baskets of their new Strawberry, the Duke, which is something like Royal Sovereign, but stated by the raisers to be superior The variety has already received the R.H.S. Award of Merit (Silver Hogg Medal). Messrs. James Carter and Co. showed a very interesting exhibit of Lettuces, comprising twenty-one sorts. While doubtless they might be grouped into a few types, each sort showed some distinctive quality, and from a cultural point of view were very fine specimens. Notable sorts were New York, or Webb's Wonderful; Market King, a very fine Lettuce of the Trocadero type; Market favourite, somewhat lighter in colour than Market King; Carter's Round Leaf, an excellent Lettuce of All the Year Round type; Buttercup, a Cabbage variety with foliage almost pale gold; Carter's Re-selected Unrivalled, which is noteworthy for the long time it lasts in good condition; Improved Spotted, which has leaves spotted with brown and very pleasingly coloured in the centre—although like all dark Lettuces this variety is not in favour in this country, it is very popular in France for its fine flavour, and is much used in salads in that country. Other dark-leaved varieties were Mignonette, which is cultivated very extensively in America, also for its fine flavour and Continuity, a dark Cabbage Lettuce with a light-coloured heart. Cos sorts included Nonesuch, Giant White and Paris White. (Silver Knightian Medal).

Messrs. Barr and Sons, King Street, Covent Garden, exhibited a collection of vegetables comprising most of the sorts in season. It was a well-arranged group and prominent kinds included Peas Triumphant and Duke of Albany; Lettuces Marvel, Green Finger, Paragon and Summer White Cos; Cauliflowers Autumn Queen and Best of All; Early Red Globe Beets; Carrots, Early Nantes and Stump-rooted, these last being exceptionally good. There were also Turnips, Potatos, Marrows, Broad Beans, Kohl Rabi, Cucumbers, Tomatos, and a collection of Herbs. (Silver Knightian Medal).

GENERAL BULB GROWERS' OF HAARLEM.

The floral committee of this Dutch Society made the following awards to Tulips and Daffodils during the past spring.

First-Class Certificates.

Narcissus incomparabilis Dorine, segments citron-yellow; the large, dark orange-red crown is deeply notched.

N. incomparabilis John Evelyn outer segments white, the wide-spread crown yellow.

Awards of Merit.

Narcissus Leedsii Patrician, the segments are white, the small trumpet-crown citron-yellow with apricot shade.

N. bicolor G. H. Van Waveren, A robust flower with deep golden-yellow trumpet and sulphur-yellow segments.

N. Golden Prince, a unicoloured, middle-sized flower; the wide, open trumpet is not recurved but notched.

N. incomparabilis Brightling, the segments are a soft, citron-yellow, the large cup orange, deeply notched and with a red margin.

N. Duke of York, a medium-sized, unicoloured golden-yellow flower, with a widespread, deeply-notched trumpet.

N. Barrii Firetail, a well-shaped flower with round, creamy-white perianth and small intense orange-red cup.

N. incomparabilis Helianthus, the segments are a clear citron-yellow, the trumpet and crown clear butter-yellow.

N. i. Lady Diana Manners, the perianth is pure white, the large crown yellow, with a broad orange margin.

N. Barrii Miss Baveley, the perianth is soft creamy-yellow, the wide-opened cup yellow with a small red margin.

N. incomparabilis Mr. Richard M. Tobin, a very large bloom with a yellow trumpet.

N. Barrii Pelican, the perianth is creamy-yellow, the long trumpet-like cup orange.

N. incomparabilis Smeroe, a giant incomparabilis; the perianth is citron-yellow, the crown wide-spread with a very broad orange-red margin.

N. Barrii Anitra, the small creamy-yellow flower has a double cup, which is red with an orange margin. The award was given as a market flower

N. incomparabilis, a sport from Lucifer, with a pure white perianth.

N. poetaz Orange Blossom, the flowers are creamy white, the large cup yellow with an orange margin. The award was given as a market flower.

N. Barrii Mayflower, the perianth is almost white with a creamy shade, the cup orange-red.

N. poeticus Sylvia, perianth white; the flat, yellow cup has a brilliant orange-red margin

Tulip Diadem, an early single variety of violet-pink colour.

T. Gladiator, a big, scarlet-red variety.

T. Sulphur Beauty, a cottage variety of soft sulphur-yellow colour.

T. White Perfection, a pure white flower on a tall stem.

SOCIÉTÉ DENDROLOGIQUE DE FRANCE.

The French Dendrological Society organised an interesting excursion on June 8 and 9, to the celebrated arboretum at La Maulevrie, near the town of Angers, in the west of France. The arboretum, which comprises one of the richest collections of the present day, was the work of the late M. Allard, who died in 1918 (see Obit., *Gard. Chron.*, March 9, 1918). It was created for the study of trees, shrubs, and bushes from a utilitarian and ornamental point of view, and more especially as a means of discovering which of the foreign imported species could be established in the western portions of France.

The collection is now the property of the Pasteur Institute of Paris, to which it was left by will, and which took it over in 1920. It is to be preserved intact so far as possible; the ground covered is about seven hectares, and there are about 2,000 species and varieties, roughly 500 trees and 1,500 shrubs.

The soil is silico-clayey, and has been greatly improved by the introduction of soil from outside. Conifers are represented by 260 species and varieties, and there are no fewer than 126 species, hybrids, and varieties of Quercus.

The first plantations were made in 1858; Sequoia gigantea, and the principal Chestnut avenue date from 1863, whilst the Oaks and the greater number of the Conifers were planted in 1875. A very fine avenue, chiefly Quercus conferta, dates from 1878.

It may be well to mention a few of the most interesting specimens. Among the Oaks, Quercus agrifolia, measures 1.70 metre in circumference at the base; Q. chrysolepis has a curious deep yellow tint under the leaves; the rare Q. crassipes, from Mexico; Q. castaneaefolia, 60 centimetres in diameter; some seedlings of Q. fulhamensis, in which the foliage is showing a strong tendency to revert to Q. Cerris; a very fine Q. Libani; a form of Q. Ilex, with very small foliage, Q. lusitanica, Q. imbricaria, Q. alba, Q. obtusiloba, Q. incana, Q. Phellos, etc.

Among Conifers, the following were noted:—a Sequoia gigantea pendula, twenty metres high; Pinus Sabiniana, one of the largest trees in the collection; Picea nigra Doumetti, a form which layers naturally; Tsuga canadensis pendula; numerous species of Cupressus, including C. guadaupensis (?), the bark of which peels off like that of the Plane; many specimens of Junipers; a very fine Cedrus atlantica pendula; Picea Morindoides, very rare; Abies Armandii, the form which bears cones larger than the ordinary type; Picea Omorica pendula; the rare Fitzroya patagonica; Athrotaxis laxifolia and A. selaginoides; Abies religiosa, A. amabilis, and A. arizonica; Pinus quadrifolia, P. parviflora, P. albicaulis, and P. cembroides; Keteleeria Fortunei; Cunninghamia yunnanensis, and Juniperus squammata.

Among the other species, the rarest or most notable specimens were as follow:—Eucalyptus urnigera, 35 centimetres in diameter at the base, some fine trees of Arbutus Andrachne, with smooth stems, coloured pink; Wistaria multijuga, of which the flower clusters were more than a metre long; a beautiful Acer Negundo var. californicum; Cerasus Padus var. cornuta and C. Maximowiczii; an Idesia polycarpa, bearing both sexes; the rare Populus euphratica, with its curious foliage; Illicium religiosum, in fruit; a fine collection of Ilex and Sorbus; numerous species of Fraxinus; Diospyros Kaki var. costata, ripening fruits; the pretty varieties of Magnolia grandiflora with round and undulating foliage; a trimmed hedge of Citrus triptera; the rare Castanopsis Delavayi; as well as Styrax officinalis, Halimodendron argenteum; Distylium racemosum, Æsculus indica and Æ. sinensis. Acer carpinifolia, Catalpa Duclouxii, Platanus occidentalis, etc.

The dwelling house on the estate is smothered in the foliage of climbing plants, such as Rhynchospermum japonicum, Punica Granatum, Tecoma capreolata, Akebia quinata, gassiflora edulis, etc.

Besides this arboretum, Anger has many other features interesting to a lover of trees, notably the very beautiful Botanic Garden planted with rare trees, and the establishments of the seedsmen, which produce every year a considerable number of young trees and shrubs for export to every part of the world. Among such establishments may be mentioned those of MM. Delaunay, Détriché, and the old-established firms of André Leroy and Louis Leroy. *A. M.*

SCHEDULES RECEIVED.

Watford Horticultural Society.—Summer exhibition, to be held at Little Cassiobury, Watford, on Wednesday, August 13.—Secretary, Mr. R. J. Willis, The Lodge, Woodview, Hempstead Road, Watford.

Royal Horticultural and Arboricultural Society of Ireland.—Summer exhibition, to be held in the Covered Court, Earlsfort Terrace, Dublin, on Wednesday and Thursday, July 9 and 10.—Secretary, Mr. E. Knowldin, 5, Molesworth Street, Dublin.

CATALOGUES RECEIVED.

J. H. Heathman and Co., Parson's Green, Fulham, S.W. 6.—Ladders, etc.

Barr and Sons, King Street, Covent Garden W.C. 2.—Seeds.

TRADE NOTES.

International Registration Bureau.

The following novelty was registered in May, 1924:—

Azalea indica var. Perle de Saffelaere, double white large flowers, obtained by crossing the varieties Herman Seidel and Marie Planchon. It is suitable for flowering from February and has large, double, white flowers. The raiser is Maison de Reuse, Saffelaere (village-lez-Gand-Belgique).

The variety gained first prize at Ghent in 1913 as a novelty with double white flowers and Certificates of merit at local shows, Ghent and Brussels.

The Annual General Meeting of Messrs. John Russell (Hampstead) Limited, was held at the registered offices, Devonshire Nurseries, Haverstock Hill, N.W. 3., on Tuesday, June 17th last. The Chairman, Mr. J. B. Slade, presented the balance sheet and explained the directors' policy of providing a reserve fund against contingencies and that out of the year's profit £341 6s. 9d. was to be transferred to reserve against depreciation of leases and a further sum of £100 to general reserve, making the total reserves now, including undivided profit, £1158 12s. 5d. The report and balance sheet were adopted and a dividend declared of 7% on the preference shares and 25% on the ordinary shares.

NEW HORTICULTURAL INVENTIONS.

Latest Patent Applications.

14,212.—Caley, E. J.—Garden tools, etc. June 12.

14,422.—Ivers, D. P.—Appliance for preventing insects damaging trees, etc. June 14.

13,696.—Bollmann, H.—Drying seeds. June 4.

12,929.—Miller, G. J.—Seed drills. May 26.

Specifications Published last Month.

213,548.—Audibert, M.—Scissors for gathering fruit and flowers.

215,529.—Tickle, L. B., and Barnes, H. J. W.—Construction of edging strips for the borders of gardens, paths, and the like.

215,632.—Watkins, P.—Gardening implements.

Abstract Published last Month.

Novel Twin Garden Roller.—Patent No. 214,508.—In a new garden roller invented two rollers are provided so that the effective pressure on the ground can be varied by tilting the frame so as to raise one of the rollers. The patentee is Mr. J. H. Jones, of The Bungalow, St. Martins Road, Looe, Cornwall. Each of the two rollers forms a large proportion of the total weight, and the handle, shafts, or the like is attached to the frame between the rollers and is arranged to assume a convenient position for use both when the plane of the axes of the two rollers is horizontal and when it is vertical. The frame consists of side members provided with extensions and bent approximately at right angles and then laterally so as to form an arch-shaped part to which is attached a sinous handle provided with a transverse grip. The extensions are slotted to receive the spindle of the sectional roller.

This list is specially compiled for *The Gardeners' Chronicle* by Messrs. Rayner and Co., Regd.; Patent Agents, of 5, Chancery Lane, London, from whom all information relating to Patents, Trade Marks, and Designs, can be obtained gratuitously.

Messrs. Rayner and Co. will obtain printed copies of the published specifications and abstract only, and forward on post free for the price of 1s. 6d. each.

ANSWERS TO CORRESPONDENTS.

Aspidistras with Decaying Foliage: *F. B.* From the examination of the foliage it would appear that the plant is pot-bound, and it would benefit by repotting into a good fibrous soil next spring. In the meantime give the plant a thorough watering every other week with a solution of Clay's fertilizer, made by dissolving one teaspoonful in a gallon of water, and keep in a light position in the room. When repotting, the same pot may be used, but it should be cleansed and the old soil carefully removed around the roots by means of a pointed stick.

Foliage Plants for Summer Bedding: *M. L.* Useful foliage plants for association with various flowers in a scheme of summer bedding include Fatsia (Aralia) japonica, Acacia lophantha, Grevillea robusta, Eucalyptus Globulus and Eulalias.

Morello Cherry: *E. R.* There is no disease present on the specimens sent. It is quite possible the tree was struck by lightning as you suggest. Examine the tree carefully and cut below the injury or remove altogether shoots as dead as those sent.

Names of Plants: *G. K. P.* 1, Asphodelus luteus (syn Asphodeline lutea); 2, A. ramosus. *W. H. D., Dorset.* Pyrus torminalis (Wild Service tree). *A. E. M., Cornwall.* Clematis alpina var. rubra. *G. R. S.* 1, Rosa lutea; 2, Anthericum Liliago major; 3, Berberis vulgaris; 4, Cornus alba var. aurea variegata; 5, Spiraea confusa; 6. Cimicifuga simplex; 7, Crataegus Crus-galli; 8, Lonicera Caprifolium; 9, Euonymus Sieboldianus; 10, Pyrus arbutifolia; 11, Colutea arborescens; 12, Exochorda grandiflora; 13, Cornus macrophylla. *R. P.* 1, Coronilla Emerus; 2, Elaeagnus pungens aureo-variegata. *W. S., Wickham.* 1, Photinia variabilis; 2, Prunus Padus (Bird Cherry). *Hants.* 1, Cytisus praecox; 2, Kerria japonica fl. pl.; 3, Sempervivum Lindleyi var. variegatum.

Peach Trees: *H. A. S.* The shoots sent were very thin and the leaves lacking in chlorophyll. The protection afforded by the covering of glass would tend to improve the tree rather than injure it, especially if the border was well watered and the tree assisted with the manures named. Syringe the trees with clear soot water two or three times a week to assist them to regain their colour.

Peach Fruits Falling: *H. E.* There is nothing seriously wrong with the cultivation of your Peach trees. The fruits sent appear to be suffering more from lack of lime in the soil than from any other cause. Lift the roots next autumn and add plenty of lime-rubble and fresh compost to assist the fruits in stoning.

Peach and Nectarine Culture under Glass: *A. H. M.* See notes on "Training Peaches" in the *Gard. Chron.* of May 24. Remove the fruits formed on the bare shoots, and syringe the trees with paraffin emulsion, for the destruction of the scale insects. Better results would follow from dressing the trees when they are dormant. Ants feed on the scale insects and would not trouble you when this pest is destroyed. Your trees should be syringed only on bright days if you use no heat in the house.

Tulips Spotted: *J. C. W.* and *R. P.* The flowers and foliage are affected with Sclerotinia parasitica and the trouble has been particularly prevalent this year owing to the very wet weather. The bulbs should be lifted so soon as the foliage has died down and harvested in a dry, well ventilated shed or room. Do not plant them until late November.

Communications Received. T. J. H.—R. B.—Gardener, Herts.—H. W.—R. G.—H. C.—G. S.—H. C.—E. H. H.—P. B.—H. T.—S. H.—A. D.—C. P. H.

THE GARDENERS' CHR

The Dates of Meetings supplied by the Secretaries of the respective Societies are as complete as circumstances

☛ **During the operation of the Summer Time Act the times gi**

JANUARY.

1	Tu	Kew Gardens re-organised, 1841.
2	W	"Gardeners' Chronicle" first issued, 1841.
3	Th	Sun rises 8 hrs. 8 min.
4	F	Sun sets 4 hrs. 2 min.
5	S	Blackburn Hort. Soc. meet.
6	**S**	*2nd Sunday after Christmas, Epiphany.* New Moon, 0.48 p.m.: Wakefield Tulip Soc. meet.
7	M	Sun rises 8 hrs 7 min.
8	Tu	Jersey Gdnrs.' Soc. meet.
9	W	Fire Insurance due; Wimbledon Gdnrs.' Soc. meet.
10	Th	1d. Post commenced, 1840.
11	F	Roy. Hort. Soc. of Ireland Council meet; Orchid Club meet.
12	S	Roy. English Arboricul. Soc. meet (prov.)
13	**S**	*1st Sunday after Epiphany.* Moon, First Quarter 10.45 p.m.
14	M	Sun sets 4 hrs. 15 min.; United Hort. Ben. Prov. Soc. meet.
15	Tu	British Museum opened 1759; Roy. Hort. Soc. Coms. meet; Nat. Rose Society's Ann. meet. Croydon. Hort. Soc. meet.
16	W	Sheffield Chrys. Soc. Ann. meet.
17	Th	
18	F	Manchester and N. of England Orchid Soc. meet.; Eastbourne Hort. Soc. meet.
19	S	Brit. Mycological Soc. meet.
20	**S**	John Lee d. 1899.
21	M	Sun sets 4 hrs. 26 min.
22	Tu	Full Moon 0.57 a.m.
23	W	Wimbledon Gdnrs.' Soc. meet.
24	Th	Gdnrs.' Roy. Ben Inst. Ann. meet and election at Simpson's, Strand, at 2.15 p.m.
25	F	Sun rises 7 hrs. 52 min.
26	S	Sun sets 4 hrs. 35 min.
27	**S**	*3rd Sunday after Epiphany.*
28	M	
29	Tu	Roy. Hort. Coms. meet; Moon, Last Quarter, 5.53 a.m.
30	W	W. of England Chrys. Soc. Ann. meet.
31	Th	Brit. Florists' Federation Ann. meet. and dinner.

FEBRUARY.

1	F	Orchid Club meet.; Pheasant and Partridge shooting ends.
2	S	*Candlemas*; Blackburn Hort. Soc. meet.
3	**S**	*4th Sunday after Epiphany*; Wakefield Tulip Soc. meet.
4	M	Nat. Chrys. Soc. Ann. meet.
5	Tu	New Moon, 1.38 a.m.; Roy. Caledonian Hort. Soc. meet.; Croydon Hort. Soc. meet.
6	W	Roy. Agricultural Soc. meet.; Roy. Scottish Arboricultural Soc. Ann. meet.;
7	Th	
8	F	R.H.S. of Ireland Council meet.
9	S	Sun sets 5 hrs. 0 min.
10	**S**	*5th Sunday after Epiphany.* Scottish Salmon fishing begins.
11	M	Sun rises 7 hrs. 26 min.; United Hort. Ben. and Prov. Soc. meet.
12	Tu	Roy. Hort. Soc. Ann. meet.; Jersey Gdnrs.' Soc. meet.: Moon, First Quarter, 8.9 p.m.
13	W	Sheffield Chrys. Soc. meet: Wimbledon Gdnrs.' Soc. meet.
14	Th	*St. Valentine*
15	F	Manchester and N. of England Orchid Soc. meet. Eastbourne Hort. Soc. meet.
16	S	Sun sets 5 hrs. 13 min.
17	**S**	*Septuagesima Sunday*
18	M	
19	Tu	Croy. Hort. Soc. meet.
20	W	Full Moon, 4.7 p.m. Glasgow & W. of Scotland Hort. Soc. meet.
21	Th	
22	F	General Holiday U.S.A.
23	S	Sun rises 7 hrs. 2 min.
24	**S**	*Sexagesima Sunday.*
25	M	Sir Christopher Wren d. 1798.
26	Tu	Roy Hort. Soc. Coms meet.
27	W	Moon, Last Quarter, 1.15 p.m.; Sheffield Chrys. Soc. meet.; Wimbledon Gdnrs.' Soc. meet.
28	Th	Roy. Botanic Soc. meet
29	F	Manchester and N. of England Orchid Soc. meet.

MARCH.

1	S	Blackburn Hort. Soc. meet.
2	**S**	*Quinquagesima. Shrove Sunday.* Wakefield Tulip Soc. meet.
3	M	Sun rises 6 hrs. 43 mins.
4	Tu	*Shrove Tuesday.* Croydon Hort. Soc. meet.; Roy. Caledonian Hort. Soc. meet.
5	W	*Ash Wednesday.* New moon 3.58 p.m; Roy. Agricultural Soc. meet.
6	Th	Sun sets 5 hrs. 47 mins.
7	F	Orchid Club meet.
8	S	Sun rises 6 hrs. 32 mins.
9	**S**	*Quadragesima. 1st Sunday in Lent.*
10	M	United Hort. Ben. and Prov. Soc. meet.
11	Tu	Roy. Hort. Soc. Coms. meet. (2 days); Jersey Gdners. Soc. meet.
12	W	Sheffield Chrys. Soc. meet.; Wimbledon Gdners'. Soc. meet.
13	Th	Moon, First Quarter, 4.50 p.m.
14	F	R.H.S. of Ireland Council Meeting: Manchester and N. of E. Orchid Soc. meet.
15	S	Brit. Mycological Soc. meet.
16	**S**	*2nd Sunday in Lent.*
17	M	*St. Patrick.*
18	Tu	Croydon Hort. Soc. meet.
19	W	Glasgow & W. of Scotland Hort. Soc. meet
20	Th	Spring Equinox.
21	F	Full Moon, 4.30 a.m.; Eastbourne Hort. Soc. meet.
22	S	Falkirk Hort. Soc. Ex.
23	**S**	*3rd Sunday in Lent.*
24	M	[2 days.
25	Tu	*Lady Day.* Roy. Hort. Soc. Coms. meet.
26	W	Sheffield Chrys. Soc. meet.; Wimbledon Gdnrs.' Soc. meet.
27	Th	Moon, Last Quarter, 8.24 p.m.: Brit. Carnation Soc. Ex.
28	F	Sun. rises 5 hrs. 47 mins.
29	S	Manchester and N. of E. Orchid Soc. meet.
30	**S**	*4th Sunday in Lent.*
31	M	Sir I. Bayley-Balfour b. 1853.

JULY.

1	Tu	Roy. Agricultural Soc. Ex. at Leicester (5 days); Roy. Caledonian Hort. Soc. meet
2	W	New Moon, 5 35 a.m. Croydon Hort. Soc.
3	Th	Sun sets 8 hrs. 17 min. [Ex.
4	F	
5	S	Blackburn Hort. Soc. meet.
6	**S**	Wakefield Tulip Soc. meet.
7	M	
8	Tu	Roy. Hort. Soc. Coms. meet.; Jersey Gdnrs.' Soc. meet.
9	W	Moon, first quarter, 9.46 p.m.; Brighton, Hove and Sussex Hort. Soc. Ex. (2 days); Sheffield Chrys. Soc. meet.; Nat. Carnation Soc. Ex.
10	Th	National Sweet Pea Soc. Ex. (2 days)
11	F	R H.S. of Ireland Council meet.
12	S	Sun rises 3 hrs. 58 min.
13	**S**	*4th Sunday after Trinity.*
14	M	United Hort. Ben. and Prov. Soc. meet.
15	Tu	*St. Swithin.*
16	W	Full Moon, 11.49 a.m.
17	Th	Sun sets 8 hrs. 7 min.
18	F	Eastbourne Hort. Soc. meet.
19	S	
20	**S**	*5th Sunday after Trinity.*
21	M	Sun rises 4 hrs. 9 min.
22	Tu	Roy. Hort. Soc. Coms. meet.; Nat. Carnation Soc. Ex.
23	W	Moon, last quarter, 4.36 p.m. Morley Paxton Soc. meet; Haywards Heath Hort. Soc. Ex. (2 days).
24	Th	Roy. Botanic Soc. meet.
25	F	Whitehall Hort. Soc. meet. Ex. (2 days).
26	S	Sun sets 7 hrs. 56 min.
27	**S**	*6th Sunday after Trinity.*
28	M	Sun rises 4 hrs. 19 min.
29	Tu	
30	W	Sevenoaks Hort. Soc. Ex.
31	Th	New Moon, 7.42 p.m.; Gun and Game Licences expire.

AUGUST.

1	F	*Lammas Day.*
2	S	Blackburn Hort. Soc. meet.
3	**S**	Wakefield Tulip Soc. meet.
4	M	*Bank Holiday.* Heathfield and Dis. Hort. Soc. Ex.; Bishop's Stortford Hort. Soc. Ex.; Shoreham Hort. Soc. Ex.
5	Tu	Scottish Nat. Sweet Pea and Carnation Soc. Ex. (2 days); Roy. Caledonian Hort. Soc. meet. Walsall Hort. Soc. Ex. (2 days).
6	W	Roy. Agricultural Soc. meet.
7	Th	Market Bosworth Hort. Soc. Ex.
8	F	Moon, first quarter, 3.41 a.m.; R.H.S. of Ireland Council Meeting.
9	S	Glasgow & W. Scotland Hort. Soc. outing.
10	**S**	*8th Sunday after Trinity.*
11	M	British Pteridological Soc. meet at Newcastle, Co. Down; United Hort. Ben. and Prov. Soc. meet.
12	Tu	Roy. Hort. Soc. Coms. meet.; Jersey Gdners.' Soc. meet.; Clay Cross Hort. Soc. Ex.
13	W	Sheffield Chrys. Soc. meet.; Scottish Nat. Sweet Pea and Carnation Soc. Ex. (3 days) in conjunction with Royal Hort. Soc. of Aberdeen. Shrewsbury Fete (2 days, prov.)
14	Th	Full Moon, 8.19 p.m. Roy. Hort. Soc. of Aberdeen Ex. (3 days).
15	F	Eastbourne Hort. Soc. meet.
16	S	Reginald Farrer d., 1920
17	**S**	*9th Sunday after Trinity.*
18	M	Sun sets 7 hrs. 15 mins.
19	Tu	Sun rises 4 hrs 53 mins.
20	W	Henley Hort. Soc. Ex.
21	Th	Honiton Hor. Soc. Ex.
22	F	Moon, Last Quarter, 9.10 a.m.
23	S	Burnley Hort. Soc. Ex.
24	**S**	*10th Sunday after Trinity.*
25	M	Sun sets 7 hrs, 1 min.
26	Tu	Royal Hort. Soc. Coms. meet.
27	W	Southport Floral Fete (3 days).
28	Th	Sandy Flower Show; Roy. Bot. Soc. meet
29	F	Sun sets 6 hrs. 52 mins.
30	S	New Moon, 8 37 a.m.
31	**S**	*11th Sunday after Trinity.*

SEPTEMBER.

1	M	Partridge shooting begins.
2	Tu	Croydon Hort. Soc. meet.; Roy. Caledonian Hort. Soc. meet.
3	W	Royal Agricultural Soc. meet.
4	Th	Sun rises 5 hrs. 18 min.
5	F	Sun sets 6 hrs. 36 min.
6	S	Moon, first quarter, 8.46 a.m.: Blackburn Hort. Soc. meet.; Falkirk Hort. Soc. Ex.
7	**S**	Wakefield Tulip Soc. meet.
8	M	United Hort. Ben. & Prov. Soc. meet.
9	Tu	Royal Hort. Soc. meet.; Jersey Gdnrs.' Soc. meet.
10	W	National Dahlia Soc. Ex.: Sheffield Chry. Soc. meet.; Hove Hort. & Allotment Soc. Ex. (2 days, prov.); Royal Caledonian Hort. Soc. Ex. (2 days).
11	Th	Sun rises 5 hrs. 29 min.
12	F	R.H.S. of Ireland Council meeting.
13	S	Full Moon, 7.0 a.m.
14	**S**	*13th Sunday after Trinity.*
15	M	Sun sets 6 hrs. 14 min.
16	Tu	Croydon Hort. Soc. meet.
17	W	North of England Hort. Soc. Ex. (3 days, prov.)
18	Th	
19	F	Eastbourne Hort. Soc. meet.
20	S	Sun rises 5 hrs. 44 min.
21	**S**	*14th Sunday after Trinity*; Moon, last quarter, 3.35 a.m.
22	M	Sun sets 5 hrs. 57 mins.
23	Tu	Royal Hort. Soc. Autumn Ex. at Holland Park Hall (3 days).
24	W	
25	Th	Royal Botanic Soc meet.
26	F	Sun rises 5 hrs. 53 min.
27	S	Sun sets 5 hrs. 46 min.
28	**S**	*15th Sunday after Trinity*; New Moon, 8.16 p.m.
29	M	*Michaelmas Day.*
30	Tu	

ONICLE ALMANAC, 1924.

will allow, but some appointments are not made at the time of publication, and others are liable to alteration.

for Astronomical and other notes must be altered accordingly.

APRIL.

1	Tu	Croydon Hort. Soc. meet.; Roy. Caledonian Hort. Soc. meet.
2	W	Roy. Agricultural Soc. meet.
3	Th	Sun sets 6 hrs. 34 mins.
4	F	New Moon, 7.17 a.m.
5	S	Blackburn Hort. Soc. meet.
6	**S**	*5th Sunday in Lent.* Wakefield Tulip Soc. meet.
7	M	Fire Insurance due.
8	Tu	Roy. Hort. Soc. Coms. meet (2 days); Jersey Gdnrs'. Soc meet.
9	W	R.H S of Ireland Spring Ex. (2 days); Huntingdonshire Daffodil Soc. Ex.; Sheffield Chrys. Soc. meet.
10	Th	Sun rises 5 hrs. 18 mins.
11	F	Orchid Club meet.; Roy. Caledonian Hort. Soc. Ex. (2 days).
12	S	Moon, First Quarter, 11.12 a.m.
13	**S**	*Palm Sunday.*
14	M	Sun sets 6 hrs. 53 min.; United Hort. Ben. and Prov. Soc. meet.
15	Tu	Roy. Hort. Soc. Coms. meet. (2 days); Croydon Hort. Soc. meet.
16	W	Glasgow & W. of Scotland Hort Soc. meet
17	Th	*Maundy Thursday.*
18	F	*Good Friday.*
19	S	*Primrose Day.* Full Moon, 2.11 p.m. Newcastle and Dis. Hort. Soc. Spring Ex.
20	**S**	*Easter Day.*
21	M	*Easter Monday*
22	Tu	Sun rises 4 hrs. 52 min.
23	W	North of Eng. Hort Soc. Ex. (3 days prov.); Sheffield Chrys. Soc. meet.
24	Th	Midland. Daff. Soc. Ex (2 days); Roy. Bot. Soc. meet.
25	F	Manchester and N. of E. Orchid Soc. meet.
26	S	Moon, Last Quarter, 4.28 a.m.
27	**S**	*Low Sunday.*
28	M	S. T. Wright d., 1922.
29	Tu	Roy. Hort Soc. Coms. meet (2 days); Nat. Auricula Soc. Ex. at R.H.S. Hall (2 days.)
30	W	Morley Paxton Soc. meet.

MAY.

1	Th	Sun sets 7 hrs. 21 mins.
2	F	Orchid Club meet.
3	S	New Moon, 11.0 p.m.; Blackburn Hort. Soc. meet.
4	**S**	Wakefield Tulip Soc. meet.
5	M	Sun rises 4 hrs. 27 mins.
6	Tu	Croydon Hort. Soc. meet; Roy. Caledonian Hort. Soc. meet.
7	W	Roy. Agricultural Soc. meet
8	Th	Sun sets 7 hrs. 32 mins.
9	F	R.H.S. of Ireland Council meeting; Manchester & N. of E. Orchid Soc. meet.
10	S	Sun rises 4 hrs. 19 mins.
11	**S**	Thomas Andrew Knight d , 1838.
12	M	Moon, first quarter, 2.14 a.m.; United Hort. Ben. & Prov. Soc. meet.
13	Tu	Roy. Hort. Soc. Coms. meet (2 days); Jersey Gdns.' Soc. meet; National Tulip Soc. Ex. (2 days).
14	W	Royal Gardeners' Orphan Fund Festival Dinner (prov.); Sheffield Chrys. Soc. meet.
15	Th	Sun sets 7 hrs. 43 mins.
16	F	Eastbourne Hort. Soc. meet; H. J. Elwes b. 1846.
17	S	
18	**S**	*4th Sunday after Easter*; Full moon, 9 53 p.m.
19	M	*St. Dunstan.*
20	Tu	Croydon Hort. Soc. meet.
21	W	Daylight Saving Bill, 1916.
22	Th	Roy. Botanic Soc. meet.
23	F	Sun rises 4 hrs. 0 min.
24	S	Empire Day; Wakefield Tulip Soc. Ex. (4 days).
25	**S**	*5th Sunday after Easter. Rogation;* Moon, last quarter, 2.16 p.m.
26	M	Birthday of Queen Mary.
27	Tu	Royal Hort. Soc. Chelsea Show, (3 days); Bath & W. & S. Counties Soc. Ex. (5 days).
28	W	Sun sets 8 hrs. 0 min. Morley Paxton Soc.
29	Th	*Ascension Day.* [meet.
30	F	Dr. Masters d. 1907.
31	S	Sun rises 3 hrs. 52 min.

JUNE.

1	**S**	Wakefield Tulip Soc meet.
2	M	New Moon, 2.34 p.m.
3	Tu	Roy. Caledonian Hort. Soc. meet.
4	W	Derby day; Roy. Agricultural Soc. meet.
5	Th	Sun sets 8 hrs. 9 min.
6	F	Orchid Club meet.
7	S	Blackburn Hort. Soc meet.; Darwen & Dis. Agric. Assn's Ex.
8	**S**	*Whit Sunday.*
9	M	United Hort. Ben. & Prov. Soc. meet.
10	Tu	Moon, first quarter, 1.37 p.m.; Jersey Gdnrs'. Soc. meet.
11	W	Roy. Hort. Soc. Coms. meet. (2 days); Sheffield Chrys. Soc. meet.
12	Th	Sun rises 3 hrs. 45 min
13	F	R.H.S. of Ireland Council Meeting.
14	S	Glasgow & W. Scotland Hort. Soc. outing.
15	**S**	*Trinity Sunday.*
16	M	Sun sets 8 hrs. 17 min.
17	Tu	Full Moon, 4.41 a.m,
18	W	
19	Th	*Corpus Christi.*
20	F	Manchester & N. of E. Orchid Soc. meet., Eastbourne Hort. Soc. meet.
21	S	Summer Solstice.
22	**S**	*1st Sunday after Trinity.*
23	M	Prince of Wales b,
24	Tu	Midsummer Day; Royal Hort. Soc. Coms. meet. (2 days); Moon, last quarter, 2.16 a.m.
25	W	Morley Paxton Soc. meet.
26	Th	Roy. Botanic Soc. meet.
27	F	Sun rises 3 hrs. 47 min.
28	S	
29	**S**	*2nd Sunday after Trinity.*
30	M	Sir Joseph Hooker b 1817.

OCTOBER.

1	W	Pheasant Shooting begins; Royal Agricultural Soc. meet. Glasgow & W. Scotland Hort. Soc. meet.
2	Th	London University opened, 1828.
3	F	Sun rises 6 hrs. 5 min.
4	S	Blackburn Hort. Soc. meet.
5	**S**	*16th Sunday after Trinity;* Moon, first quarter, 2.30 p.m.; Wakefield Tulip Soc. meet.
6	M	Sun sets 5 hrs. 26 mins.
7	Tu	Roy. Hort. Soc. Coms. meet (2 days); Roy. Caledonian Hort. Soc. meet.
8	W	Sheffield Chrys. Soc. meet.; Wimbledon Gdnrs'. Soc. meet.
9	Th	Various licenses expire.
10	F	R.H.S of Ireland Council meeting.
11	S	Sun rises 6 hrs. 18 min.
12	**S**	*17th Sunday after Trinity;* Full Moon, 8.21 p.m.; Fire Insurance due.
13	M	United Hort. Ben. & Prov. Soc. meet.
14	Tu	Jersey Gdnrs.' Soc. meet.
15	W	Morley Paxton Soc. meet.
16	Th	Sun rises 6 hrs. 27 min.
17	F	Eastbourne Hort. Soc. meet.
18	S	*St. Luke, Evangelist.*
19	**S**	*18th Sunday after Trinity.*
20	M	Moon, last quarter, 10.54 p.m.
21	Tu	Roy. Hort. Soc. Coms. meet.; Croydon Hort. Soc. meet.
22	W	Sheffield Chry. Soc. meet.; Wimbledon Gdnrs'. Soc. meet.
23	Th	Roy. Botanic Soc meet.
24	F	
25	S	Sun sets 4 hrs. 45 min.
26	**S**	*19th Sunday after Trinity.*
27	M	Sun rises 6 hrs. 46 min.
28	Tu	New Moon, 6.57 a.m.; Newcastle & Dist. Hort. Soc. ann. meet.
29	W	Glasgow & W. of Scotland Hort. Soc. meet
30	Th	Sun rises 6 hrs. 51 min.
31	F	Sun sets 4 hrs. 34 min.

NOVEMBER.

1	S	Blackburn Hort. Soc. meet.
2	**S**	Wakefield Tulip Soc. meet.
3	M	Moon, first quarter, 10.19 p.m.
4	Tu	Roy. Hort. Soc. Com. meet.; West of England Chrys. Soc. Ex. (3 days); Croydon Hort. Soc. meet.; Eastbourne Hort. Soc. Ex. (2 days); Roy. Caledonian Hort. Soc. meet; Birmingham Chrys. Soc. Ex. (3 days).
5	W	Roy. Agricultural Soc. meet.; Wimbledon Gdnrs'. Soc. meet.; Bath Gdnrs'. Soc. Ex. (2 days); St. Neots Chrys. Soc. Ex.
6	Th	Bedford and Dis. Chrys. Soc. Ex.; Jersey Gdnrs.' Soc. Ex.; Nat. Chrys. Soc. Ex. (2 days)
7	F	Sun rises 7 hrs. 5 min.
8	S	Sun sets 4 hrs. 10 min.
9	**S**	*21st Sunday after Trinity.*
10	M	Gloucestershire Root and Fruit Soc. Ex.; United Hort. Ben. and Prov. Soc. meet.
11	Tu	Armistice signed 1918; Full Moon 0.31 p.m. Jersey Gdnrs. Soc. meet.; Brighton Hove and Sussex Hort. Soc. Ex. (3 days); Roy. English Arboricultural Soc. meet. [Chrys. Soc. Ex.
12	W	Wimbledon Gdnrs'. Soc. Ex.; Marlow
13	Th	Hitchin Chrys. Soc. Ex.; Sheffield Chrys. Soc. Ex. (3 days).
14	F	R.H.S. of Ireland Council meet,; Blackburn Hort. Soc. Ex. (2 days).
15	S	Brit. Mycological Soc. meet.
16	**S**	*22nd Sunday after Trinity.*
17	M	Sun sets 4 hrs. 7 min.
18	Tu	Roy. Hort. Soc Com. meet.
19	W	Moon, last quarter, 5.39 p.m.
20	Th	Sun rises 7 hrs. 28 min.
21	F	Eastbourne Hort. Soc. meet.
22	S	Morley Paxton Soc. Ex. (prov.)
23	**S**	*23rd Sunday after Trinity.*
24	M	Sun rises 7 hrs. 34 min.
25	Tu	[Soc. meet.
26	W	New Moon, 5 16 p.m.: Wimbledon Gdnrs'.
27	Th	Roy. Botanic Soc. meet.
28	F	Sun sets 3 hrs. 55 min.
29	S	Sun rises 7 hrs. 42 min. [died, 1922.
30	**S**	*Advent Sunday.* Sir I. Bayley-Balfour

DECEMBER.

1	M	Birthday of Queen Alexandra.
2	Tu	Roy. Hort. Soc. Coms. meet; Croydon Hort. Soc. meet.; Roy. Caledonian Hort. Soc. meet.
3	W	Moon, first quarter, 9.10 a.m.; Sheffield Chry. Soc. ann. Dinner; Royal Agri. Soc. meet; Glasgow & W. of Scotland Hort. Soc. meet.
4	Th	Sun sets 3 hrs. 51 min.
5	F	P. Spencer Pickering d., 1920.
6	S	Blackburn Hort. Soc. meet.
7	**S**	Wakefield Tulip Soc meet.
8	M	United Hort. Ben. and Prov. Soc. meet.
9	Tu	Jersey Gdnrs'. Soc. meet.
10	W	Wimbledon Gdnrs'. Soc. meet.
11	Th	Full Moon, 7.3 a.m.
12	F	R.H.S. of Ireland Council meet.
13	S	Sun rises 7 hrs. 59 min.
14	**S**	J. C. Loudon d., 1843.
15	M	
16	Tu	Roy. Hort. Soc. Coms. meet.; Croydon Hort. Soc. meet.
17	W	Sheffield Chrys. Soc. Concert.
18	Th	Sun sets 3 hrs. 50 min
19	F	Moon, last quarter, 10.11 a.m. Eastbourne. Hort. Soc. meet.
20	S	
21	**S**	*4th Sunday in Advent.* Shortest day.
22	M	Winter Solstice
23	Tu	Sun rises 8 hrs. 6 min.
24	W	F. W. Burbidge d., 1905.
25	Th	*Christmas Day.*
26	F	*Boxing Day.* New Moon, 3.46 a.m
27	S	
28	**S**	*1st Sunday after Christmas*
29	M	Sun sets 3 hrs. 56 min.
30	Tu	Sir Trevor Lawrence b., 1831.
31	W	Sun rises 8 hrs. 8 min.

JAN 28 1

SUPPLEMENT PLATE: Celmisia Lindsayi.

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PALMS, KENTIA FOSTERIANA and BELMOREANA. Clean, sturdy plants, packed in 3-inch leatherboard pots and carriage paid per passenger train, 12/6 per doz., cash with order.—J. W. COLE & SON, Westwood Nurseries, Peterborough.

SHOW AND REGAL PELARGONIUMS. Clean, sturdy, healthy plants, from 3-inch pots, 12 fine named varieties, 9/-; newer ones, 12/- and 15/- per doz, post free for cash with order, or carriage paid per rail in Leatherboard pots 2/6 per doz. extra. Catalogues free.—J. W. COLE & SON, Westwood Nurseries, Peterborough.

PLANTS &c., WANTED.

CUT BERBERIS wanted, any quantity, best price.—Write, SNOW, High Cross Street, Leicester.

MISCELLANEOUS.

IRON AND WIRE FENCING for Gardens, Tree Guards, Gates, Arches, Espaliers, Rose Stakes, and Ornamental Garden Iron and Wire Work of every description; send for illustrated catalogue. Also Kennel Railing and Poultry Fencing. Ask for separate lists.—BOULTON & PAUL, LTD., Norwich.

SEWAGE DISPOSAL for country houses factories, farms, etc.; no emptying of cesspools; no solids; no open filter beds; everything underground and automatic; a perfect fertiliser obtainable.—WILLIAM BEATTIE, 9, Lower Grosvenor Place, Westminster.

BIRDS' BATHS, Sundials, Vases, Statuary, Birds' Nesting Boxes, etc.—Catalogue (No. 3) free.—MOORTON, 60, Buckingham Palace Road, S.W.1.

STONE PAVING.—Crazy and Rectangular York Garden Paving, Copings, Steps, etc., Grit and other Rocks for Rock Gardens; Flat Stone Rubble for "Dry" Walls. Nottingham Marl. Large or small quantities carriage paid to any Railway Station in England.—HODSON & SONS, LTD., Castlegate, Nottingham.

SELECTED GREY WESTMORLAND Weathered and Waterworn Mountain Limestone Rockery. The finest Rockery Stone; also York Stone Garden Paving.—HERBERT BROOK, 40, Valley Road, Streatham, S.W.16. and Lightcliffe, Yorkshire.

PEAT MOULD for Rhododendron and Nursery work, 5/- bag, 25/- ton, in truckloads, on rail.—WALKER, Pinewoods, Camberley.

PEAT for Orchids, 10/- sack; Peat Mould 25/- ton; 4 ton lots. Loam and Leaf Mould 12/- yard; 6 yard lots. Silver Sand 3/- cwt., 15/- ton; 2 and 4 ton lots. C. N. Fibre 3/- bag; list free: on Rail or C. P. & Co.—J. HANDSCOMBE, Stores, Feltham.

TURVES. LOAM.—For all purposes. Large or small quantities. Moderate prices.—FROGLEY AND SONS, Hoddesdon, Herts.

SELECTED CUMBERLAND TURF, finest in the world; waterworn Limestone Rockery; all descriptions Stone and Flags for Crazy Paving.—KERSHAWS, LIMITED, Garden Makers for 50 years. Keighley.

ANTHRACITE FOR GREENHOUSES.—SemAnthracite, Large (registered), Smokeless, 25/9 per ton at pit; Horticultural Semi Anthracite, 22/6 ton, pit; SemAnthracite Cobbles, 33/6 ton, pit; recommended by the National Radiator Company. Gas, Furnace, and Foundry Coke from 30/-, works. Delivered prices any station on application.—BUCKLE COLLIERY CO., 50, Hales, Cheltenham.

FOR SALE.—Shanks 25-inch PONY MOWER, as new; used one season. Price £30.—RANSOM, Trueloves Gardens, Ingatestone, Essex.

BELLGLASSES (2,000) for Sale, in lots to suit buyers; cheap.—Write, No. 277, KEITH & CO., Edinburgh.

WANTED, quantity of Good Manure, Agricultural Lime, Basic Slag, Gravel, Stone Garden Ornaments, Motor Grass Mower, Iron Railings. Reply, with best trade terms, delivered Haslemere, to BRADLEY, Garden Accessory Dept., 63 & 64, Piccadilly, London.

SITUATIONS VACANT

Twenty words (or three lines including headline) **4s.**, *and* **1s.** *for every succeeding eight words (or line or portion thereof). Fee for having replies addressed to this office,* **1s.**

Advertisers desiring their Advertisements repeated must give **full particulars,** *otherwise no notice can be taken of their communications. Name and address alone are insufficient.*

Gardeners writing to Advertisers of Vacant Situations are recommended to send them **copies** *of testimonials only, retaining the originals. To part with original documents means to run a great risk of their being mislaid.*

When addressing Box numbers, it is essential to give the **initials or pseudonym,** *as well as the correct number of the box.*

MUNICIPAL AND PUBLIC.

COUNTY BOROUGH OF WEST HAM.
WEST HAM FYFIELD SCHOOL, ONGAR, ESSEX.

THE Education Committee require the services of a RESIDENT WORKING GARDENER (single man), trained in the practice and theory of Horticulture and capable of instructing boys up to the age of 16. The man appointed will also be required to assist in the usual supervision duties of the School. Salary £160 per annum, with board, lodging, washing and medical attendance.

The Council has, by resolution, decided that none but Trade Unionists shall be engaged for service with the Corporation.

Application forms can be obtained at the Education Offices, The Grove, Stratford, and should be returned to me by the 15th January, 1924.—GEORGE E. HILLEARY, Town Clerk,
Education Offices,
95, The Grove,
Stratford, E. 15.
22nd December, 1923.

WESTWOOD CERTIFIED INSTITUTION, CLAYTON HEIGHTS, BRADFORD.

LADY GARDENER-ATTENDANT required, must have good experience in kitchen garden work and be able to superintend the work of feeble-minded girls. Salary, £50 plus bonus, at present £5 17s., board-residence and uniform.—Applications to be sent to the MATRON, and to be accompanied by references or testimonials.

PRIVATE.

WANTED, for ORCHIDS, a reliable and thoroughly experienced man to take charge of same.—Particulars of experience, wages required, with good bothy, &c., to W. H. BACON, The Mote Gardens, Maidstone.

WANTED, HEAD WORKING GARDENER. Must be thoroughly experienced in all branches and have first-class testimonials from good establishments; six men kept; good cottage provided. Present Head leaving to take partnership with Nurserymen.—Apply by letter, stating full details, with age, family, wage, to AGENT, Heathfield Park, Sussex.

WANTED, experienced HEAD WORKING GARDENER of two; 36—40; £2; cottage.—MISS CRAWSHAY, Hertfordshire House, Coleshill, Amersham, Buckinghamshire.

WANTED, for East Herts, HEAD WORKING GARDENER, experienced Inside and Out, able to superintend small estate. Churchman. Good house provided; state particulars, experience, wages, to—H. F. BUXTON, Manor of Groves, Sawbridgeworth.

WANTED, GARDENER (SINGLE-HANDED), experienced Out and Inside; knowledge of poultry; married; furnished or unfurnished quarters supplied; London district.—Apply, giving particulars and salary required, S. S., Box 18, 5, Tavistock Street, Covent Garden, London, W.C. 2.

WANTED, SINGLE-HANDED GARDENER, good all round knowledge, wages £2 10s. per week and small lodge; a man 30-35 waiting to be married would suit.—Apply C. ILOTT, Cliffe Hill Gardens, Lightcliffe, Nr. Halifax

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WANTED at once. Can any lady or gentleman recommend trustworthy capable GARDENER, good with vegetables and flowers; SINGLE-HANDED with help; age under 45; cottage and fuel provided; wages £2.—FRANKS, Longacre, Shanley Green, Guildford.

WANTED, SECOND GARDENER (Inside and Out); good knowledge of Roses, Carnations and Mums; furnished bedroom provided; state age, wages and references.—GARDENER, Ibstone House, near Stokenchurch, Under High Wycombe, Bucks.

WANTED, UNDER GARDENER (Inside), thoroughly experienced in fruit and plants; wages 36/- a week and cottage.—Write stating age and full particulars to W.H.S., Willing's, 32, Knightsbridge, S.W.1.

WANTED, FOREMAN (INSIDE), good general knowledge of Fruits and Plants. Please state wages, with bothy, etc., also copy of testimonials to C. F. WOOD, The Warren Gardens, Hayes, Kent.

WANTED, FOREMAN (INSIDE). State age, experience, wages expected, with bothy, vegetables, attendance to J. HOAD, Colworth Gardens, Sharnbrook, Beds.

WANTED, General FOREMAN (single); must be thoroughly experienced in all departments, especially herbaceous plants and roses, also decorating; must be well recommended; wages 44/- per week with bothy, etc.; duty every second week, paid extra 6/-.—Apply stating age, height, and experience, with copies of testimonials and references to F. MALTBY, Leighton Hall Gardens, Welshpool.

REQUIRED, Plant FOREMAN, age about 30; unmarried; live in bothy.—Apply for particulars, T. W. BIRKINSHAW, Blenheim Gardens, Woodstock.

WANTED, FOREMAN (INSIDE), one that has held a similar position before; good plant and fruit grower and decorator; would like interview if suitable; expenses paid. Also a good JOURNEYMAN, strong, for pleasure ground work. State wages expected, bothy and attendance.—SMITH, Littlecote Park, Hungerford, Wilts.

CAN any Gardener recommend good CRICKETER for Estate Club; one capable of coaching at the nets and take charge of ground; comfortable permanent position. State wages required, and capabilities, to F. PYE, Newlands Manor Gardens, Lymington, Hants.

WANTED, KITCHEN GARDENER, experienced; capable of supplying continuous crop of first class vegetables. State wages, experiences, etc.—GARDENER, Wonford, Walton-on-Hill, Surrey.

WANTED, two experienced JOURNEYMEN (one Inside and Out), wages 30/.; one for pleasure grounds, wages 32/-; bothy; duty; state full particulars.—F. H. BENEY, The Willows Gardens, Windsor.

WANTED, JOURNEYMAN (INSIDE), 35/-; bothy, milk and veg.; duty 5/-; particulars of self and experience, with copies of testimonials, to.—L. J. H. Box 14, 5, Tavistock St., Covent Garden, London, W.C.2.

WANTED, JOURNEYMAN, about 23 (Inside and Out). State experience, references and wages, with bothy.—J. E. FAGENCE, Roydon Hall Gardens, Tonbridge.

WANTED, JOURNEYMAN for Fruit and Plant Houses, wages 35/- per week; bothy, etc., 8/- extra for duty, one in four.—State experience, etc., to W. H. BACON, The Mote Gardens, Maidstone.

CAN Head Gardener recommend energetic JOURNEYMAN with good experience in Fruit dan Plants; age 23; wages 36/-; with duty 38/6; bothy, vegetables and attendance.—R. H. SMITH, Hawarden Castle Gardens, Chester.

WANTED, young MAN, about 20 (OUTSIDE), one used to Ransome's Motor Lawn Mower, 24-in.; 30/- week, no bothy.—GARDENER, Langton Hall, Market Harborough.

WANTED, YOUNG MAN (27), for kitchen Garden and fruit; duty every third week; wages 38/-, bothy etc.—H. J. DAVIS, Harefield Place Gardens, Uxbridge.

IMPROVER wanted, chiefly (Inside); wages 23/- per week; bothy, etc.—Apply, A. GIBSON, Headington Hill Hall Gardens, Oxford.

TRADE.

WANTED, a thoroughly reliable active MAN as propagator and to take charge of 4 greenhouses, to raise and grow trees, hardy climbers, rock and herbaceous plants; permanent position for suitable man; cottage vacant; South of England.—G.A., Box 2, 5, Tavistock Street, Covent Garden, W.C. 2.

WANTED, single man as FOREMAN; good propagator and grower for our glass department, chiefly softwooded bedding plants, dahlias, ferns, tomatoes, etc.—Apply stating full particulars, age, experience, and wages required, JAMES WRIGHT & SONS, Nurserymen, Leicester.

CANADA. Definite situations Ontario Fruit Farm, Nurserymen, Farmhands, Married Gardener, good wages, own fare, March sailing.—UNION TRANSIT CO., Glasgow.

WANTED GROWER, (INSIDE and OUT). for small market nursery, state experience and wages required to—SOUTH END NURSERY, Cold Ash, Newbury.

CAPABLE and reliable MAN wanted, thoroughly experienced in Tomatoes, Cucumbers, Chrysanthemums, and all inside crops for market. State wages required, and give references.—GARNETT, Croft Nurseries, Botcherby, Carlisle.

VACANCY for PUPIL, up to date, modern Fruit Farm, General Nursery, glass, open-air pig rearing, poultry; packing, and marketing produce; premium.—RYDER, Stratford-on-Avon.

SEEDSMAN wanted, Counter Hand for Garden Seed Department.—Send particulars, experience, and wages required, to TOOGOOD & SONS, LTD., The King's Seedsmen, Southampton.

SEED, Nursery Florist and Sundriesman.—Wanted, SHOPMAN, capable salesman either department; state experience and where gained, age, married or single.—THOMAS BUTCHER, The Nurseries, South Norwood.

WANTED, ASSISTANT with good knowledge of Seed, Bulb, Sundries and Plant Trade.—Apply with full particulars, ARTHUR ROWLES, Seedsman, Oxford.

WANTED, JUNIOR ASSISTANT, general knowledge of Seed and Nursery Trade; state age, wages, experience, etc.—PENNELLS, Seedsmen, Doncaster.

WANTED, a LADY GARDENER with knowledge of grading, propagating, and bees.—PACKER, Box 3, 5, Tavistock Street, Covent Garden, W.C. 2

EXPERIENCED smart YOUNG LADY for shop wanted.—THE FLORAL DEPOT, 783, High Road, Leytonstone, E. 11.

FIRST CLASS FOREIGN Nursery Firm, chiefly Roses and Trees, requires competent REPRESENTATIVE for Great Britain and Ireland; prospect of taking over general representation later.

Apply, with copies of references and all particulars, to ROSES, Box 15, 5, Tavistock Street, Covent Garden, W.C. 2.

Messrs. JOHNSON & HEWITT

Horticultural Auctioneers and Valuers,

Wandsworth Common Station, S.W. 12
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Telephones - Battersea 1022 and Sunbury 26.

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26, COAL EXCHANGE, LONDON, E.C.

can supply at special prices :—

Economic House Coal
„ Kitchen Coal
„ Anthracite
Furnace Coke Nuts,

the cheapest fuel for small boilers.

Delivered free in truck loads at any Station.

CHRYSANTHEMUMS.

My 60-page Catalogue and Guide, post free, contains Best Up-to-date Collections, including the New Varieties of 1923, for Exhibitors.

My New Earlies, some of which have gained Awards by the R.H.S. and N.C.S. recently. Also New Decorative Varieties of Recent Introduction. In all 360 Varieties, all Sections.

Also Catalogue of over 300 Varieties, all Sections, Dahlias. Begonias, finest double-named, semi-double and single in separate colours. Border Carnations, collection of 130 Varieties. Winning Silver Cup Three Seasons.

Zonal Pelargoniums, 120 Finest Varieties obtainable. Violas, 100 Exhibition and Bedding Varieties. Pansies, 50 Varieties named Scotch, from best raisers. Sweet Peas, etc., etc.

H. WOOLMAN, Shirley, Birmingham.

TURF LOAM.

Very Fibrous Yellow Turf Loam

For VINE BORDERS, CARNATIONS, ROSES, MELONS, CHRYSANTHEMUMS FRUITS UNDER GLASS, etc. etc.

Quotations Carriage Paid to any Station.

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New Park, Cranleigh, SURREY.

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HAS been posted to all customers. Should it not have been received, another copy will be gladly sent on receipt of a postcard.

The Perfection of Quality at a Reasonable Price.

DAWKINS (from Veitch's),
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Garden Peas from MAY to NOVEMBER

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SUTTON'S
SPECIAL COLLECTIONS
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Consist of some of our best varieties, which under suitable conditions of culture should produce a succession of the Finest Marrowfat Peas.

Sutton's Pioneer
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Per Collection { 2 quarts of each 54/-; 1 quart ,, ,, 28/-; 1 pint ,, ,, 16/3 } Carriage free.

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The history of the Garden Pea is one of constant improvement and now under proper cultivation, and by the choice of suitable varieties, delicious Marrowfat Peas may be picked during 7 months of the year.

Such wonderful improvement has been achieved by years of patient cross-breeding and selection and the Garden Pea of to-day bears no resemblance to the poor varieties of former times, either in size or quality. In no variety is this advance more marked than in our well-known V.C. — the largest-podded Pea in cultivation, or Phenomenon, the giant-podded dwarf.

Full particulars of all the best Peas will be found in our Garden Seed Catalogue for 1924 — free on application.

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Early Favourite Pea	2/- pint	Seld. Ailsa Craig Onion... ...	2/6 pkt.
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Send for WEBBS' GARDEN CATALOGUE, Post free.

WEBB & SONS, Ltd., STOURBRIDGE.

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Twenty words, **2s.,** *and* **6d.** *for every succeeding eight words or portion thereof. (Advertisements at this special rate are only accepted direct from gardeners and nursery employees. Fee for having replies addressed to this office,* **1s.**

PRIVATE.

WILLIAM WOOD & SON, LIMITED, the Royal Horticulturists, have on their register several capable head gardeners, for both large and small establishments, whom they can confidently recommend.—For full particulars apply, Beechwood Offices, Taplow, Bucks.

GARDENER (Head): 33 years' first-class experience; Vines, Peaches, Melons, etc.; good organiser and controller of men; excellent testimonials; disengaged when suited.—McKENZIE, Sandhurst Lodge Gardens, Wellington College Station, Berks.

GARDENER (Head). Lt. Col. The Hon. J. Dawnay recommends GEO. ELLIS, Head here 7 years; previously Head at Nidd Hall 15½ years; has had a wide experience in all branches.—Abbey Gardens, Wykeham, Yorks.

A keen, energetic and capable HEAD GARDENER seeks position of trust, either temporary or permanently in public, private or commercial capacity, wide experience in all branches highest references; age 40.—Apply M. G. G., Box 6, 5, Tavistock Street, Covent Garden, London, W.C.2.

GARDENER (Head or Single-Handed); life experience, Inside and Out; married; age 36; (two children 15 and 12); good references.—F. LINFIELD, Clay End, Walkern, Stevenage, Herts.

MR. W. GEDDES, Head Gardener to Sir Rupert Clarke, Bart., Brockwood Park, Alresford, highly recommends W. A. DUNN as Head Working Gardener; energetic; life experience Inside and Out; age 36; married when suited; excellent references.—W. A. DUNN, Rushmere Cottages, Frensham, Farnham, Surrey.

GARDENER (Head Working).—H. Miller, Esq., Agent to Viscount Cowdray, highly recommends A. ELBOURN, for the past 4 years in charge of the gardens at Paddockhurst. Thoroughly experienced in all departments; highest references.—ELBOURN, Paddockhurst, Worth, Sussex.

GARDENER (Head Working); life's practical experience in all branches (Inside and Out); age 40; married (one child, age 10)—PORTNALL, Cae-Gallt, Glyngarth, Menai Bridge, Anglesey.

GARDENER (Head Working), thoroughly experienced in all branches; leaving through death and establishment being broken up; at liberty when suited; married (no family).—JONES, Eversley Gardens, Milnthorpe, Westmorland.

GARDENER (Head Working), where 2 or 3 others are kept; life experience in all branches Inside and Out; good references; married, no family. —ELLIS, near Earley Station, Reading.

GARDENER (Head Working), for seven years Gardener to the late A. K. Loyd, Esq., K.C., M.P., requires situation; highest references.—RICH, Downs House Gardens, Steventon, Berks.

HEAD GARDENER (Working) where several are kept, desires change; age 48; married (no family); fully qualified all branches; excellent manager.—HORTIC. Box 10, 5, Tavistock Street, Covent Garden, W.C.2.

HEAD WORKING GARDENER, Age 38; married; 23 years' experience in all branches, inside and out. Carnation speciality; excellent references; present place nearly 6 years.—BAXTER, Farnham Royal, Bucks.

GARDENER (Head Working), experienced all branches, Market and Private; best references from best establishments.—Apply L. HERBERT, Lodge, Seagrove, Seaview, Isle of Wight.

HEAD-WORKING GARDENER, living Bristol; life experience Inside and Out; 10 years' Head; no family; age 45.—S. W. A., Box 11, 5, Tavistock Street, Covent Garden, W.C.2.

GENTLEMAN highly recommends his Foreman as HEAD WORKING GARDENER; good experience both Inside and Outside work; disengaged when suited.—BEST, Batchwood Hall, St. Albans, Herts.

GENTLEMAN giving up establishment highly recommends his GARDENER (Head-Working); age 39; married (one child age 8); life experience all branches.—DUDLEY, 2, Halkyn Terrace, Rossett, near Wrexham.

GARDENER (Head Working). –G. T. SIMSON, for the past eleven years in charge of Oakley Park Gardens, Diss, Norfolk, seeks re-engagement; thorough practical experience in all branches, Inside and Out; leaving owing to estate being sold; highly recommended.—Please apply as above.

GARDENER (Head Working).—Mr. A. R. Searle, F.R.H.S., Castle Ashby, Northampton, will be pleased to recommend RICHARD HILL as above. Life experience; age 31; married when suited.—Please apply above address.

GARDENER (Head Working): life experience in all branches; well recommended; disengaged Feb. 1st.; age 40; married, when suited.—CLAMPITT. Leighton Hall Gardens, Welshpool, Wales.

GARDENER (Head Working); practical life experience in all branches, Inside and Out; highly recommended; married, age 34 (one child age 3½). —H. S., c/o Street, Western Cottages, Betchworth, Surrey.

GARDENER (Head-Working or good Single-Handed); life experience Inside and Out; abstainer; age 48; married (1 son away married); 11½ years' last place; good references; knowledge electric light plant; disengaged.—OSMOND, Park Road, Campden, Glos.

GARDENER (Head Working or good General Foreman); life experience in all branches; age 36; married (no family); highest references.—M. W. H., Box 7, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED, about the middle of February; to take charge and manage a good GARDEN; thoroughly experienced in all branches, Inside and Out; also experience with working electric light plant; oil engines; 4 years' good character; head of three. Small cottage and wages required together not to over exceed one pound per week.—READ, Sherbourne Street, Bourton-on-the-Water, Glos.

GARDENER (Single-handed or with help); experienced Inside and Out; good references; single; London district preferred.—A. C., Box 13, 5, Tavistock Street, Covent Garden, W.C.2.

MRS MARSHALL, The Towers, Pinner, highly recommends her gardener as a thorough, practical man, with all flowers, fruit, vegetables. Private and commercial experience. Leaving through estate being sold. Apply full particulars, HUMPHREY.

GARDENER (25); married; as Single-Handed Gardener; 8 years' experience; excellent references.—Apply A. GODDARD, Rose Cottage, Foulden, Nr. Brandon, Norfolk.

GARDENER (Single-Handed); life experience throughout; willing to be useful; wife or daughter (21) for house if required; cottage or rooms; good references.—GILL, Hermitage, Road, Kenley, Surrey.

GARDENER requires situation, (Single Handed), understands Inside and Out; married, age 24.—SYMONDS, Rose Cottage, North Street, Burwell, Cambs.

GARDENER (Single-Handed); requires situation; 10 years' experience Inside and Out; excellent references; married.—HORSMAN, 34, New Street, Henley-on-Thames.

SINGLE-HANDED GARDENER, aged 26, all-round experience; married when suited, cottage.—JENNINGS, 11, Malvern Street, Hove, Sussex.

GARDENER. Take charge of Gardens willing to milk cow; pony, poultry, Single-handed or with help. 35 years, married, 2 children. —C. J., Box 16, 5, Tavistock Street, Covent Garden, London, W.C.2.

GARDENER (Working); seeks re-engagement through death of employer; life experience all branches; excellent references; highly recommended; married; disengaged.—CLANFIELD, The Beacon, Dormansland, Surrey.

GARDENER (Single-Handed or Good Second); twelve years outside experience; excellent references; single; age 33.—GARDENER, 23, Abbey Walk, Cambridge.

GARDENER (Single-Handed or Second); 12 years' experience Inside and Out; good references; age 36; married (two children); leaving through death of owner. Particulars, with cottage.—LONGLEY, 19, Leigham Court Road, Streatham, S.W.

UNDER GARDENER seeks situation; General Outside; single; take Sunday duty. Use Atco mower; understand cars.—A. BEARDSLEY, 225, College Street, Nuneaton.

UNDER GARDENER requires situation; experienced, Kitchen and Pleasure Grounds; age 26; single; good reference.—JENNINGS, Castle upon Allum, Bridgend.

AS SECOND GARDENER, or married FOREMAN, where several are kept; age 27, (married when suited); experienced Inside and Out; and well up in the requirements of a large establishment, and highly recommended by present Head Gardener.—W. A., Box 9. 5, Tavistock Street, Covent Garden, London, W.C.2.

FOREMAN (Inside) 27; requires situation in well kept establishment; experience gained in large establishments; good references; at liberty Jan. 11th.—SANDHAM, Sandbeck Park Gardens, Maltby, Rotherham, Yorks.

FOREMAN (Inside); fruit and plants; good decorator; first class references gained in good establishments, including Pains Hill Park, Cobham, Surrey, and Stoneleigh Abbey, Kenilworth; age 28; state wages with bothy.—A. HOLMES, Locko Park, Spondon, Derby.

FOREMAN (Inside). where several are kept, life experience with Fruit, Flowers and Vegetables, House and Table decorations, well recommended by previous employers, single, left through reduction of staff.—P. L., Box 12, 5, Tavistock Street, Covent, Garden, London, W.C.2.

FOREMAN (Inside or Second), life experience in all branches; single; age 39; good references; state wages.—BALDERSTONE, c/o Mrs. Ward, Burnham Thorpe, King's Lynn, Norfolk.

FOREMAN (Inside), seeks situation, good references from first class establishments, single. —ALLEN, Busbridge Hall Gardens, Godalming.

KITCHEN GARDENER seeks situation; life experience; good reference; married.—E. Dewye, South Lodge, Warfield Park, Bracknell, Berks.

OUTSIDE LEAD; Pleasure Grounds; age 27; good references; 8 years' experience in Herbaceous Borders, Pergolas, etc.—Apply, A. H., Box 4, 5 Tavistock Street, Covent Garden, W.C.2.

JOURNEYMAN (23) seeks situation (Inside), Fruit and Plants. Excellent references, disengaged, 9 years' experience.—GURTON, Battles Hall, Stapleford Abbotts, Romford, Essex.

JOURNEYMAN (Inside) or Inside and Out, desires situation, willing and respectable, 5 years' experience, Royal Horticultural Society's Certificates, good references, liberty.—H. WEARING, Levens Hall Gardens, Milnthorpe, Westmorland.

JOURNEYMAN (20); (Inside); 6 years' experience; Toms.; Cucs.; seeks situation; estate or nursery; good reference.—PRISMALL, Brook Street, Twyford, Berks.

H. DUKE, The Lodge Gardens, Felixstowe, recommends E. KNIGHTS, Good Inside JOURNEYMAN; age 20; obliging; trustworthy; free now; bothy preferred; four years here.

MR. G. ROBINSON, Keverstone Gardens, Bath, would like to hear of situation for JOURNEYMAN (Inside or Inside and Out), age 19, 4 years' experience, civil, obliging, smart appearance.

YOUNG MAN (age 19), seeks situation Fruit and Plants, in good establishment, bothy preferred, strongly recommended.—S. DAY, Stokke Gardens, Gt. Bedwyn, Wilts.

YOUNG MAN (18) seeks situation as IMPROVER on private Garden; 3 years experience, strong, willing, good education, excellent references. —PORER, 1, Derby Street, Marple.

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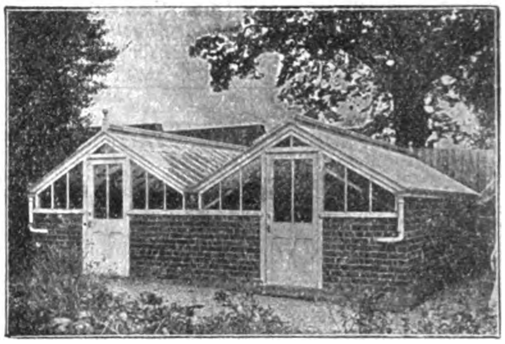

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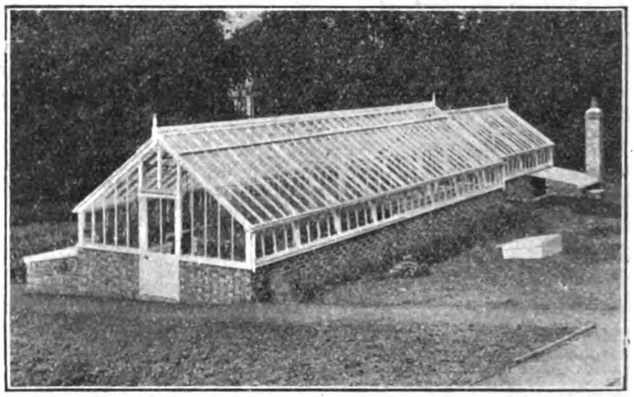

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Nº 4357

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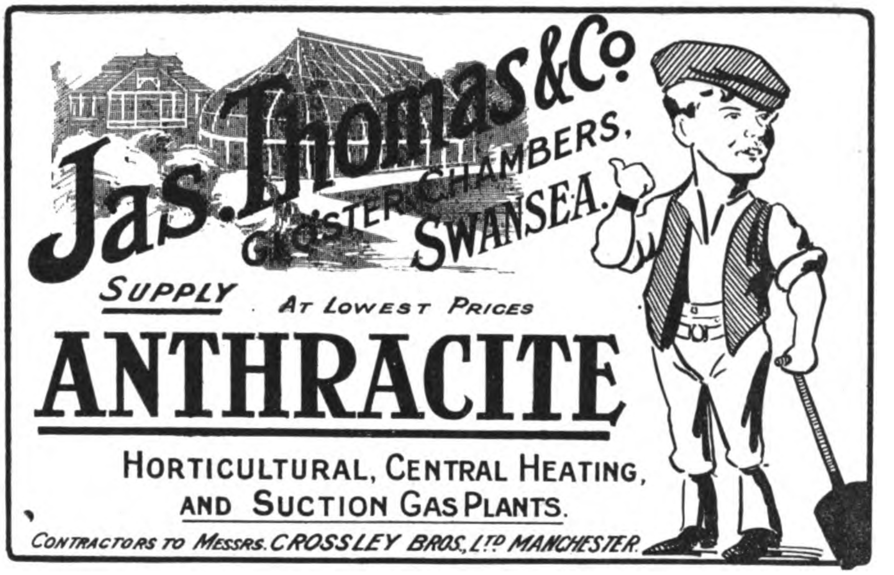

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to cover 4 ft.—capacity 1¼ bushels
" 3 ft. " ¾ "
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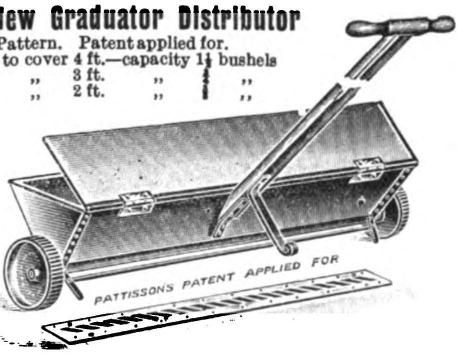


The Simplest, Quickest, and most Effective Top Dresser. Adjustable to any powder material. No waste. Great time and labour saver.

Illustrated Price List, with Testimonials, from the makers:—

"The ONLY Economical Ones."

USED in the Royal and thousands of the Principal Gardens, GOLF and CRICKET GROUNDS, and exclusively at the Oval S.C.C.C. for past 20 years. *OVER* 10,000 *SETS USED IN THE U.K.*

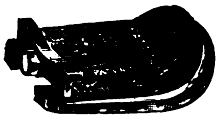


Fig. 1 for Shod Horses

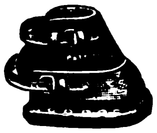


Fig. 2. Welted Boot

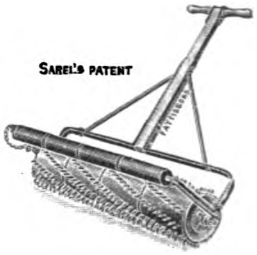
HUNDREDS OF TESTIMONIALS

***The Field* says: "As good as anything that could be devised."**

Mr. Wm. Hardy (Gardener to Lt.-Col. Hon. W. Guinness): "The boots supplied 17 years ago are still in use and have always been satisfactory."

SAREL'S PATENT SPIKED ROLLER.

Comm. Hillyard, R.N., The All England Lawn Tennis Club, Wimbledon, writes: "The 'Sarel' Roller is invaluable for aerating the ground. It saves an enormous amount of labour and is most beneficial to the turf. I should be very sorry to be without such a valuable implement."



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USE ONLY GENUINE HIGH GRADE HOSE FOR WEAR

PREMIER Branded Hose 3 ply × 60 ft.
½ in. **62/6**, ¾ in. **72/6**, 1 in. **95/-**, 1¼ in. **110/-**

KINNELL No. 4 Branded
3 ply × 60 ft.

½ in. ...	**36/9**
¾ in. ...	**50/9**
1 in. ...	**65/8**
1¼ in. ...	**77/-**

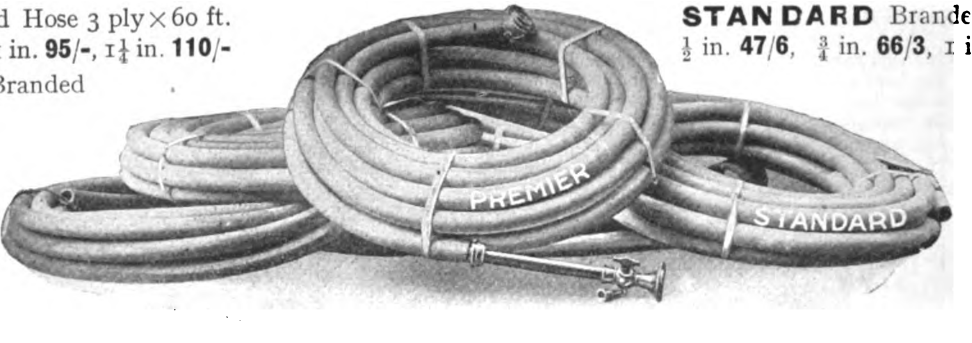
Brasswork
extra.

STANDARD Branded Hose 3 ply × 60 ft.
½ in. **47/6**, ¾ in. **66/3**, 1 in. **85/-**, 1¼ in. **100/-**

Also Highest Grade Long Length Hose.

Growers **Clearway** Brass Branch with Rose and Jet.
½ in. **4/9**, ¾ in. **7/8**,
1 in. **12/3**.

Ask for List and Samples free.



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If your Seedsman does not stock 'ALVESCO' SPECIAL INSECT WASH send us his name and address.

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SPECIAL POINTS.
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From all Seedsmen or in case of difficulty write direct to: MURPHY & SON LTD. MORTLAKE, S.W. 14

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GREEN'S WORLD FAMOUS LAWN MOWERS

By Special Appointment To His Majesty The King.

GARDEN ROLLERS & TENNIS MARKERS

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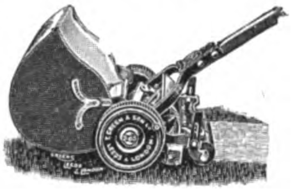
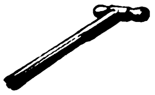
THE PIONEERS OF ALL THAT IS BEST IN LAWN MOWERS.

GREEN'S "SILENS MESSOR" LAWN MOWERS

GREEN'S "New Century" Lawn Mowers

The ideal Mower for small lawns, slopes, banks, etc.





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Made in sizes 24 in. to 42 in.

Green's Improved Light Motor Mowers

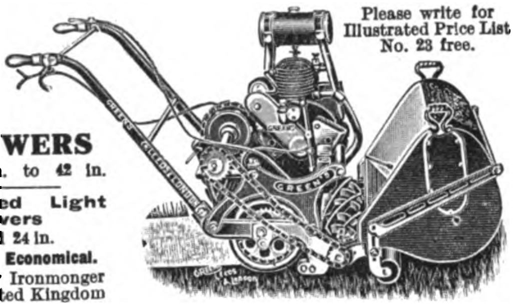
Sizes: 20 in. and 24 in.

Reliable, Efficient and Economical.

May be had from any Ironmonger or Seedsman in the United Kingdom

Over a Million sold.

Please write for Illustrated Price List No. 23 free.



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KNAPSACK SPRAYER. Vermorel Type, No. S 3.

Popular on the Continent, and embodies all recent improvements. Container of Sheet Copper, 3½ gallons capacity. All working parts and Brass Fittings comply with requirements of Food Production Department of the Board of Agriculture. Fitted with internal rubber Diaphram, Pump and rubber Valves. Suitable for spraying Potatoes, Fruit Trees, Vines, Charlock, Tea, Coffee, Rubber Plantations, etc.

50s. each

90s. Two Machines

PACKED AND CARRIAGE FREE

Standard Machines not fitted with Chest or Horizontal Back Strap unless specially ordered. Chest strap 1/- extra. Back strap 9d. extra.

WRITE FOR BOOKLET POST FREE.

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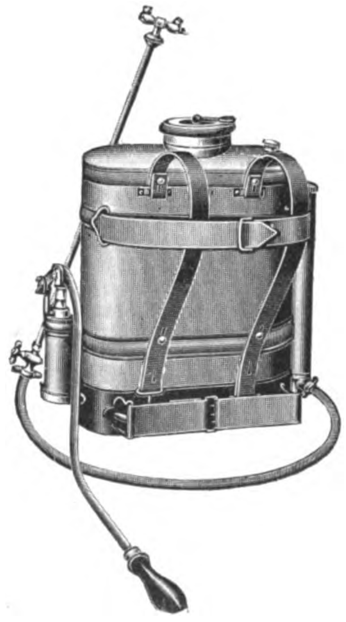

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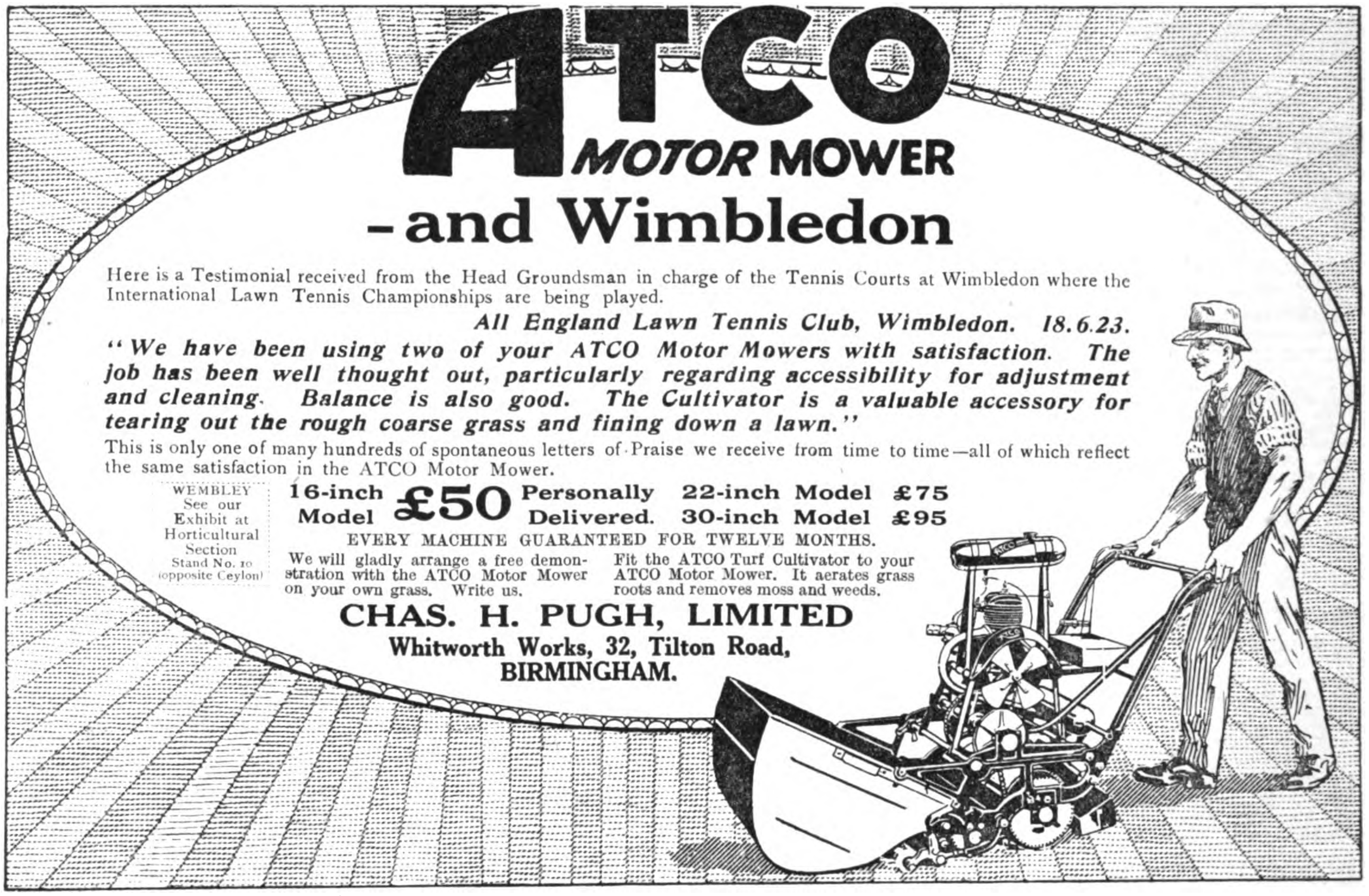

ATCO MOTOR MOWER

-and Wimbledon

Here is a Testimonial received from the Head Groundsman in charge of the Tennis Courts at Wimbledon where the International Lawn Tennis Championships are being played.

All England Lawn Tennis Club, Wimbledon. 18.6.23.

"We have been using two of your ATCO Motor Mowers with satisfaction. The job has been well thought out, particularly regarding accessibility for adjustment and cleaning. Balance is also good. The Cultivator is a valuable accessory for tearing out the rough coarse grass and fining down a lawn."

This is only one of many hundreds of spontaneous letters of Praise we receive from time to time—all of which reflect the same satisfaction in the ATCO Motor Mower.

WEMBLEY
See our Exhibit at Horticultural Section
Stand No. 10
(opposite Ceylon)

16-inch Model £50 Personally Delivered. 22-inch Model £75 30-inch Model £95

EVERY MACHINE GUARANTEED FOR TWELVE MONTHS.

We will gladly arrange a free demonstration with the ATCO Motor Mower on your own grass. Write us.

Fit the ATCO Turf Cultivator to your ATCO Motor Mower. It aerates grass roots and removes moss and weeds.

CHAS. H. PUGH, LIMITED
Whitworth Works, 32, Tilton Road,
BIRMINGHAM.

Have You Provided?

The United Horticultural Benefit & Provident Society

PROVIDES 27/- per week in illness for 1/1½, 18/- for 9d., or 12/- for 6d. weekly contributions.
PROVIDES your dependants with £10, £15 or £20 at death, according to scale.
PROVIDES you with a Savings Bank.
PROVIDES grants from Distress and Convalescent Funds.

PROFIT BY THE EXPERIENCE OF A MEMBER WHO HAS £150 TO HIS CREDIT

State insured Members of this Society may pay an additional 2d. per week for an extra 4/- sick pay, or 4d. per week for an extra 8/- sick pay. This is in addition to the State Benefits, and £10 payable at death.

Private and Market Gardeners, Nurserymen, Seedsmen and Florists up to the age of 45 years are eligible for membership

These advantages are fully explained in the pamphlet obtainable from Mr. C. F. Harding, "Overton," Lower Shiplake, Henley-on-Thames; Mr. J. W. Penton, Warren House Gardens, Kingston Hill, Surrey; Mr. H. Prince, Polesden Lacey Gardens, Dorking, Surrey, or

THE SECRETARY
35, Alexandra Road, West Kensington, W. 14.

Sutton's of Reading

Watch your Lawns for Clover

Clover is now making its appearance in Lawns and will spread rapidly unless a careful watch is kept. To check it there is no better preparation than

Sutton's Anti-Clover Mixture

Occasional dressings should be given in dry weather at the rate of 2 oz. per square yard. Not only is the Clover effectively checked but the mixture also acts as a stimulant to the grass.

Tins each 1/6; 7 lbs. 2/9; 14 lbs. 5/-; 28 lbs. 9/-; 56 lbs. 17/-; 112 lbs. 30/-.

Advice gladly given on any matters connected with the upkeep of Turf.

Address: Dept. "S.A.D."
SUTTON & SONS
The King's Seedsmen
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For Lawn Grass Seeds, Fertilisers, etc.

WILLIS BROS.'
Garden Fertiliser

THE BEST ON THE MARKET.
NO STABLE MANURE REQUIRED.

For digging in or as a top dressing. For Kitchen Gardens or Herbaceous Borders. 1 cwt., **15/-**; ½ cwt., **9/-**; 28 lb., **5/-**. **£14 10s.** per ton. All Carriage Paid.

Give our VINE MANURE a trial.

You will be well satisfied with results. It puts new life into old vines. Contains 7% Potash, 22% Phosphate, 4% Nitrogen. 1 cwt., **25/-**; ½ cwt., **14/-**; 28 lbs., **8/-**. ¼ lb. to the sq. yard, after thinning.

BEST QUALITY NETTINGS.

Heavy Tanned Garden Nets. For Strawberry beds. Diamond mesh. 8 x 25 yards, or 50 x 4 yards, **27/6** each. Carriage paid.
New Netting. Square mesh. Corded all round. Let us quote you for size you require. Light, medium, or heavy weight. 1", ¾", or ½" mesh.
Tarred Tennis Stop Netting. With lines top and bottom.

	6	7	8	9 feet high	
Light quality	**1/2**	**1/4½**	**1/6**	**1/8**	per square run
Medium ,,	**1/3**	**1/6**	**1/8**	**1/10**	,, ,,
Stout ,,	**1/6**	**1/9**	**2/-**	**2/3**	,, ,,
Extra Stout	**2/-**	**2/3**	**2/6**	**2/9**	,, ,,

Tennis Nets and Poles supplied at Makers' Prices.
Greenhouse Blinds made to order.

GARDEN SUPPLIES AT LOWEST PRICES.

Write for our list of Garden Manures and Horticultural Sundries. Free on application.

WILLIS Bros. (HARPENDEN) Ltd.
HARPENDEN, HERTS.

MARKETS.

COVENT GARDEN, Tuesday, June 24, 1924.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum per doz.	10 0 18 0
—elegans	10 0 12 0
Aralia Sieboldii	9 0–10 0
Araucarias, per doz.	30 0–42 0
Asparagus plumosus	12 0–15 0
—Sprengeri	12 0–18 0
Aspidistra, green	48 0 72 0
Asplenium, per doz.	12 0–18 0
—32's	24 0 30 0
—nidus	12 0–15 0
Cacti, per tray, —12's, 15's	5 0– 7 0
Crassules, 48's, per doz.	24 0–30 0
Crotons, per doz.	30 0–42 0
Cyrtomium	10 0–15 0
Erica magnifica, per doz.	24 0–36 0
Hydrangeas, white, 48's, per doz.	24 0–30 0
—blue, 48's, per doz.	30 0–42 0

	s. d. s. d.
Hydrangeas, pink, 48's, per doz.	24 0 36 0
Marguerites, white, 48's, per doz.	18 0 21 0
Mignonette, 48's, per doz.	10 0 12 0
Nephrolepis, in variety	12 0–18 0
—32's	24 0 36 0
Palms, Kentia	24 0–30 0
—60's	15 0–18 0
—Cocos	24 0 36 0
Pteris, in variety	12 0–21 0
—large 60's	5 0 6 0
—small	4 0 4 6
—72's, per tray of 15's	3 6 4 0
Rhodanthe, pink and white, per doz.	9 0–12 0
Roses, Polyantha, 48's, per doz.	18 0–24 0
Spiraeas, pink	21 0–27 0
Stocks, white, 48's, per doz.	12 0–15 0
—coloured, 48's, per doz.	18 0 24 0
Verbena, Miss Willmott, per doz.	12 0–15 0

REMARKS.—Trade is not quite so brisk in this department and the stocks of bedding plants are much reduced. Decorative plants and Ferns are receiving more attention. The most attractive plants are Crassulas, Hydrangea hortensis in various sizes; Hydrangea paniculata, double and single, Marguerites, Verbenas, a few pink Erica magnifica, and Rambler Roses, which vary considerably in price from 10/6 to 30/- each.

Cut Flowers, etc. Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	15 0–18 0
—cuneatum, per doz. bun.	12 0–15 0
Anemone St. Bridgid, per doz. bun.	3 0– 4 0
Asparagus plumosus, per bun. long trails, 6's	4 0– 5 0
med. sprays	2 6– 3 6
short „	1 0– 1 6
—Sprengeri, per bun. long sprays	3 0– 3 6
med. „	2 0– 2 6
short „	1 0– 1 3
Carnations, per doz. blooms	1 6– 3 6
Chrysanthemum maximum, per doz. bun.	2 6– 3 6
—Shasta Daisy, per doz. bun.	3 0– 4 0
Coreopsis, per doz. bun.	3 6– 4 0
Cornflowers, per doz. bun.	1 0– 1 6
Croton leaves, var., doz. bun.	2 0– 2 6
Delphinium, per doz. bun.	4 0– 9 0
Fern, French, per doz. bun.	1 0– 1 3
Gaillardia, per doz. bun.	4 0– 5 0
Gardenias, per box, 12's	4 0 6 0
Gladiolus, Peach Blossom, per doz. bun.	9 0 12 0
—Blushing Bride, per doz. bun.	9 0 12 0
—The Bride, per doz. bun.	9 0 12 0
—salmon, per doz. spikes	2 0 3 0
—scarlet, per doz. spikes	3 0 3 6
—pink, per doz. spikes	2 6 3 0
—white, per doz. spikes	3 0– 3 6
Gypsophila elegans, per doz. bun.	3 0 5 0
Iceland Poppies, per doz. bun.	3 0 4 0
Iris, blue, per doz. blooms	1 3– 1 6
—mauve, per doz. blooms	1 0 1 3
—white, per doz. blooms	1 0 1 6
—yellow, per doz. blooms	1 6– 2 0

	s. d. s.d.
Roses, Richmond, per doz.	2 0 3 0
—Frau Karl Druschki, per doz.	1 6– 3 0
—Mme. Butterfly, per doz. blooms	2 0 3 0
—White, per doz.	2 0– 3 0
—Columbia, per doz.	1 6 3 0
—Ophelia, per doz.	1 6 2 6
—Sunburst, per doz.	2 0 2 6
—Mme. Abel Chatenay	1 6 2 6
Statice, mauve	12 0 15 0
Stephanotis, per 72 pips	3 0– 4 0
Sweet Peas, per doz. bun.	4 0 10 0
Heather, white, per doz. bun.	9 0–12 0
Lilium longiflorum long, per doz.	2 6– 3 0
short „ „	2 0– 2 6
—rubrum long, per doz. blooms	2 6– 3 0
—short „ „	3 0 3 6
Lily of the Valley, per doz. bun.	30 0 36 0
Nigella, per doz. bun.	3 0 4 0
Orchids, per doz. —Cattleyas	13 0 24 0
Paeonies, scented, 6's, per doz. bun.	9 0 12 0
Pinks, white, per doz. bun.	1 6 2 0
Pelargonium, white, per doz. bunch	8 0 9 0
Smilax, per doz. trails	5 0 6 0
Scabiosa caucasica, per doz. bun.	4 0 5 0
Stock, double white, per doz. bun.	8 0 15 0
Sweet Sultan, mauve, per doz. bun.	4 0– 6 0
—white, per doz. bun.	5 0– 6 0
Violas, per doz. bun.	2 6– 3 0

REMARKS.—The supplies of outdoor blooms have increased considerably during the past week. The cheapest during the week-end have been Cornflowers, Delphiniums, Gypsophila elegans, Gladioli of giant-flowered varieties, Paeonies, Mrs. Sinkin Pink, white Daisies and Chrysanthemum maximum. Coreopsis and Gaillardia are arriving in large quantities. Sweet Sultans are the newest arrivals; they include white and mauve varieties and these are usually a good selling line. Pyrethrums are practically over for this season. Irises also show signs of finishing and will not last many more days if hot weather continues. Stocks are taking the place of Pyrethrums for floral designs; coloured sorts are also arriving in good condition. Carnations and Roses are offered at reduced prices owing to the increased supplies during the past few days. Lilium longiflorum and L. lancifolium rubrum have been sufficient for requirements, and their prices are much reduced. Lily-of-the-Valley may be one of the shortest subjects in cut flowers at the present time. Sweet Peas are arriving in excellent condition, and a good selection is on offer, the prices varying from 4/- to 15/- per dozen bunches.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples—	
New Zealand Sturmer Pippin	20 0–22 0
—others	16 0–18 0
Tasmanian	18 0–20 0
—others	14 0–16 0
Australasian Pears, per tray	7 0–12 0
—Beurré Bosc	6 0 9 0
—Winter Nelis	8 0–10 0
Cherries, ½-sieve	6 0–14 0
—Boats	5 0– 8 6
—Boxes	1 3– 2 0
Australian Grapes	22 6–25 0
Bananas, singles	13 0–25 0
—doubles	14 0–25 0
Grapes—	
—English Black	
—Gros Colmar	2 6– 4 0
Hamburgh, per lb.	2 0– 4 0
—Belgian Black Hamburgh	1 9– 3 0
—Muscats	3 0– 8 0
Apricots	6 0–10 0
English Cherries—	
—Black	12 0–15 0
—White	9 0–10 0
English Figs, per doz.	3 0–12 0

	s. d. s. d.
Belgian Peaches, per doz.	10 0–12 0
English Peaches	10 0–24 0
French Peaches	7 0–12 0
French Cantaloupe, each	10 0–16 0
Gooseberries, ½-sieve	4 0– 6 0
Guernsey Melons	2 6– 6 0
Lemons—	
—Murcia	15 0–22 0
—Messina, box	8 0–10 0
—Case	12 0–16 0
Nectarines	12 0–24 0
Oranges, Spanish, per case	18 0–35 0
Pines, case	17 6–45 0
Red Currants	6 0– 7 6
Black Currants	10 0–12 0
South African Navel	20 0–22 6
—Seedlings	20 0–22 6
—Grape Fruit	35 0–40 0
Strawberries—	
—Southampton, per chip	1 6 3 0
—Kent, per chip	3 0– 5 0

Vegetables: Average Wholesale Prices.

	.d. s. d.
Beans—	
Guernsey	1 3 1 9
Worthing	1 3– 1 9
Madeira, basket	2 0– 4 0
Beets, cwt.	20 0–25 0
Cabbage, per doz.	1 0– 2 0
Carrots, new, per doz. bun.	8 0–11 0
Cauliflower, crates, 24's	10 0–12 0
Cucumber, 3 doz., 3½ doz., 4 doz.	12 0–16 0
English Lettuce, round, per doz.	0 3– 0 9
—long, per doz.	0 9– 1 6
Forced Marrows, doz.	9 0–10 0
Green Artichokes, doz.	1 0– 2 0
Greens, bag	1 6– 2 6
Mushrooms, lb.	1 0– 2 0
—Outdoor, lb.	0 4– 0 8
Mint, doz.	3 0– 4 0
Onions, Valencian, cases	10 0–12 0
—Dutch	8 0– 9 0

	s. d. s. d.
Parsley, doz. bunches	3 0– 4 0
Parsnips, cwt.	8 0–10 0
Potatos, Guernsey, per bushel	7 0– 8 0
—Jersey, barrel	8 0–10 0
—Spanish, cwt.	14 0–16 0
—St. Malo, cwt.	15 0–16 0
Radishes—	
Round	1 6– 2 6
—Long	1 0 1 6
Peas, blue, bushel	9 0–12 0
—white, bushel	7 0 8 0
Spinach, bushel	2 6 3 6
Spring Onions, per doz. bun.	6 0–12 0
Tomatos, Canary Island	20 0 25 0
—English, pink and white	10 0–11 0
— —blue	8 0– 9 0
— —white	8 0– 9 0
—Guernsey	9 0 10 0
Turnips, new, per doz. bun.	10 0–12 0

REMARKS.—All sections in this department have been active during the past week, the fine weather being in favour of the fruit trade. Strawberries show considerable expansion in quantities but the usual fall in values has not been so acute as might be expected with all districts sending more or less together. In spite of the competition of Strawberries, New Zealand and Tasmanian Apples are in good demand at comparatively high prices. Oranges from South Africa are a steady trade, the weather conditions being favourable for their consumption. Cherries from France have been much wanted as the earliest English Cherries are ripening late this season. Apricots from Spain have sold well as have the few Spanish Plums available. English Gooseberries have suffered from the competition of Gooseberries from Holland, and they have been difficult to sell at anything like satisfactory prices. Larger consignments of Peas affected sales for Asparagus, which slumped in price; with a number of growers ceasing to cut after the 20th the demand should improve for the reduced supplies. The heaviest quantities of Tomatos for the season brought about a lowering of prices. Cucumbers are also quoted easier. Mushrooms continue to be very plentiful and prices are still low, especially for broilers. New Potatos from St. Malo are plentiful and cheap. Blight in Jersey Potatos has restricted the sales of Jersey tubers. French Beans are easier in price. Green vegetables are plentiful. Lettuce, both Cos and Cabbage are practically a drag on the market, so heavy are supplies.

GLASGOW.

There was a slump during the past week when supplies were so plentiful that they could only be disposed of at prices which were in most cases about half of the values ruling in the preceding period. At times salesmen had no option but to take what they could get, and Pyrethrums sold as low as 1/- per box and Iris at 2d. per bunch. Roses and Carnations touched 1/6 per doz. and a few lots of the former only realised 1/-. Quotations fluctuated widely but the following may be taken as representative:—English Pyrethrums, 1/- to 2/- per doz.; Scotch do., 4/- to 6/-; Iris, 2/- to 4/-; Specials 6/- to 7/-; Marguerites, 2/- to 3/-; Sweet Peas, 9d. to 1/-; Specials, 1/9 to 2/- per 18's; Carnations, 1/6 to 2/6; Paeonies, 4/- to 6/-; Gladioli, 10d. to 1/6 for six; Roses, 1/- to 2/- for Richmonds and 2/- to 3/- Mme. Butterfly and Mrs. H. Stevens.

The bedding out season is almost over, but there was an exceptional demand for Asters and Lobelias which were very scarce. Geraniums, on the other hand, were cheap at 5/- to 6/- per doz.

Pot plants depreciated in price, and Pelargoniums and Fuchsias were almost unsaleable at 12/- per doz. as the result of big consignments received from growers all over the country. Spiraeas realised 18/, Ferns 12/- and Marguerites 9/- to 12/- per doz.

The vegetable market was the one bright spot amid the general depression. English Asparagus sold at 5/- to 6/- per bunch; Peas, 10/- per half pot; Cauliflowers, 5/- per doz, and Lettuces, 2/- to 3/-. A special lot of Ayrshire grown Lettuces obtained 4/6. A good business was done in Tomatos, which are now more plentiful. Prices, however, are well maintained. English averaging 14/- per basket; Scotch, 16/-; Dutch, 12/-, and Guernsey, 13/-. Scotch-grown Cucumbers realised 7/- to 8/- per doz., French Turnips 1/3 and Carrots 1/1 to 1/3.

Fruit is coming in good condition and commands a ready sale. Southampton and Cheddar Strawberries sold at 4/6 to 5/- per chip of three pounds; Gooseberries, 3½d. to 4d. per lb.; Cherries, 14/- and Apricots, 12/-. Australian Apples and Pears were dearer; Sturmer Pippin, at 24/-; Winter Nelis, 21/-, and Beurré Bosc, 17/6 per half case. Other varieties ranged from 16/- to 26/- per case.

SELECT LIST
OF
BOOKS ON GARDENING.

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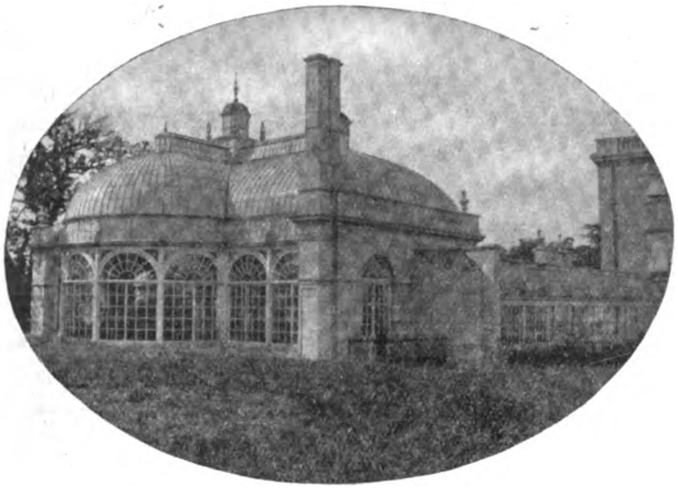

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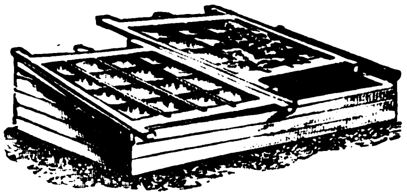

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